

An examination of the philosophy of Substance and its relation to the philosophy of Mind, with special reference to Aristotle and Descartes, and their conceptions of science.

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Ph. D.

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Abstract.

(Much of this thesis is literally a detailed examination, and this abstract is very bare. A guiding summary is placed after the index, and summaries precede each chapter).

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The confused character of theory of mind (Ch.I) parallels confusion as to the status of "substance" (Ch.II). The philosophical problem is that of relating incompatible theses, and especially of discovering what is involved in modes of argument employed by metaphysicians in terms of "mind" and "substance", since these produce a fantastic set of "conclusions".

Types of argument to "necessary substances" can be shown to be vacuous. But it remains to show that these are actually employed by philosophers.

Descartes does employ such arguments (Ch.III), and his "necessary substances" cannot be related to "actual substances". The "unity of man" and the truth of observation statements are his real problems. As a conceptual system his dualism is of kinds of thing, and presents no problems; but he treats it confusedly as "definitional" and related to empirical science. It is then a metaphysical dualism.

His arguments to an unextended thinking substance are complex and invalid. The Cogito does not reduce the sensing agent to a soul; and Descartes' theory of science treats Thought, not the thinking agent, as substantial. (Ch.V).

His theory of soul and thought is Socratic and untenable as a theory of thought or of science (Ch.VI - developed in Ch.VII).

The identification of Subject, Substance and Thing, when considered in relation to fact statements and natural science (Ch.VIII) enables us to develop a theory of logic in an Aristotelian manner. Descartes' "two substance" thesis depends upon this logic for its "necessity", and is logically incoherent. Descartes' rejection is really of common nouns; he substitutes for them "soul" and "body", not "substance".

Once (Ch.VII) the contrast is made clear between patterns of simple notions and human thinking and science, the issue becomes one of finding reasons for rejecting fact-values for the variables of propositions in logic. Descartes wants fact-predicates, e.g. "thinking", and the vital claim is that there are manifold "qualities" of mind. But none of these can be discovered (Ch.IX) even if we go beyond Descartes' own writings in search for them.

The second great use of "substance" is correlative with

"form". Contrasting "mental" and "material" substance we find that what holds these theses in meaningful opposition is History and history, as previously it was fact statements in a natural language and occurrences. We are now able (Ch.X) to relate (a) statements in logic, (b) statements in History, and (c) metaphysical or category statements. These last are equivalent to statements about classes of statements necessary to History and its accounts of historical individuals.

This is related (Ch.XI) to uses of "thing" and "substance" in ordinary discourse, and Aristotle's logical, categorial and metaphysical concepts are derivable from this. In Ch.XII the central doctrine of the De Anima is shown to relate logic, metaphysics and classificatory natural science, definitions and observation statements - from such a system are drawn the terms which Descartes and other metaphysicians treat as meaningful independently of statements in natural science. It is contended that without natural science, logical and metaphysical truths are ontologically vacuous.

We conclude with the endorsement of "substance" as a valid category or metaphysical term, and the rejection of "a metaphysical substance" and "a metaphysical subject" as meaningless expressions; with the endorsement of statements about men doing science, empirical and rational, and the rejection of metaphysical arguments to minds or souls as doing science, empirical or rational.

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Errata.

Because of mistakes in page-numbering, pages numbered 30, 143, 148, do not exist. The opposite error results in p. 88a following p.88.

Omissions.

There is all too little recognition of my indebtedness to many philosophers whose lectures, writings, seminars and conversations have provided me with much that does not fit neatly into points or arguments or footnotes, but is easily or with dialectical discomfort absorbed into what one believes to be "philosophy".

General Summary

Much of this thesis consists of detailed investigation, in an attempt to discover the connections between a host of general and specific accounts all of which are held to belong at least to the same subject, which can be called loosely "Theory of Mind".

The variety of confusions and contradictions, which are obvious features of theory of mind, proves on examination to swell rather than to decrease. The task then becomes that of finding common features which may serve as a point d'appui for philosophical consideration, and this is provided initially by "substance". In contrast with an Aristotelian examination of mind-theory which results (I shall argue in detail) in the insistence upon men being a sub-class of animals and of living creatures which exhibit similarity of structure and of behaviour - the latter including doing science in any of its forms - primitive beliefs that souls leave bodies at death and sometimes during life (in sleep, in coma) closely resemble philosophical and psychological theories, which equally regard the soul or mind as a thing, a substance, which (even if "tied" to bodies of a particular kind) operates on its own initiative.

2. Primitive and sophisticated theories, from this point of view, make the same sort of existential claim of souls that is made by Aristotelians of men and animals. Statements are made which are factual and historical, and the subject of the statements is said to exist. Yet one difference is immediately plain: the sophisticated theories profess to prove their claims, and they offer proof in detail and in many ways.

It is commonly held that there is no disagreement as to the facts which constitute the premises of these arguments, but examination of the arguments reveals that the common view is erroneous. Similarly, it is held that the types of argument employed are generally valid, i.e. are formally identical with arguments in other fields. This, too, proves to be erroneous.

My argument that arguments of the form "p,q,r therefore s" or "p,q,r but not p,q,r unless s" depend for their force upon the truth of the propositions which can be substituted for the symbols p,q,r, however the truth be established, and upon a logical connection between these and a proposition substituted for s, i.e. a logical connection between premises and conclusion, introduces no novelty.

Similarly, in arguing that no existential claim holds of terms in s which are not already included in the premises p,q,r, and hence that if s is an existential statement (e.g. "there are minds such that...") the subject has already appeared with an existential assumption or affirmation in the premises, I am offering nothing new. It follows from this that the existential claim is not to be made good by argument, except in so far as the argument is a part of investigation and discovery. This, too, is philosophically

familiar. The "contingency" of matters of fact and of existential truths has long been recognised.

Yet it is immediately striking in the case of Descartes in the case of "substance" and in the case of "mind" (which is inseparable from "substance") that both their existence and their nature are argued to; and it is in general true of all "philosophical substances" that their nature and existence must be argued to. The forms of argument employed must be considered in detail, since whether they are claimed to be so or not, they may be special forms; and we find ourselves compelled to consider the status and nature of facts or other premises and the language in which they are stated. This last must surely be considered in the contemporary philosophical climate, and my general position can be indicated in this way:

Fact statements are made in a language which develops in connection with a familiar world, investigation of which determines the use and meaning of words in a developing language. Hence affirmation and denial are possible, in one language, and hence "evidence for" and "argument" will have a meaning, while existential claims can be made and rejected along with fact-claims, in terms of established meanings and criteria and relations of facts.

What is further involved, and cannot be avoided, is the consideration of scientific methodologies which insist upon "explanatory concepts" and "conceptual systems", since these depend for their claimed function upon entailments between concept-statements and fact-statements, or upon statements of relation which are peculiar in kind (are neither conceptual nor factual), and the concept-assertions are accompanied by both denials and assertions of the existence of the concepts as things.

A key problem in the understanding of Descartes is precisely his doctrine of concepts and of method; and only a detailed examination can show adequately what is involved in his attempt to make truths of logic, of mathematics, of conceptual physics and of "real science" identical with "mind" in a sense completely incompatible with the treatment of "mind" as a simple thinking agent. What comes into question now is the whole Cartesian thesis as to the nature of science and logic and metaphysics, and the focal point is "substance". My goal here is to show Cartesian science and metaphysics is, in spite of Descartes' reiterated insistence upon history and historical fact, completely anti-historical.

3. The Aristotelian, by contrast, is factual and historical. In presenting the contrast between Aristotelian and Cartesian, the crux is the philosophy of Substance. My procedure is complicated, since attention to details of Aristotle and of Descartes has resulted in its being impossible for me to accept general accounts of the general philosophy or the philosophy of mind of either. My viewpoint became primarily Aristotelian in the course of working on this thesis, and I want to show (a) what his doctrine of Substance as Individual amounts to, and (b) the importance which it has in general philosophy as well as in the philosophy of mind. Thus I

want to show that even where there is professed opposition to the Aristotelian position, or when the methodology appears to be opposed to the Aristotelian, the science of man which has developed since his day (including psychology) rests upon it. Aristotelian logic, and theory of classification, are connected with this - they involve a common-sense pluralism which treats ordinary fact-claims and existential claims as meaningful and valid - and while a misunderstanding of the logic and of classification resulted in a misguided treatment of Substance, the Cartesian revolt against Aristotelianism endorses this misguided treatment, obtains "necessity", and is incompatible with the common-sense pluralism which no scientist or philosopher can consistently deny.

Elucidating the senses of Substance and the forms of arguments in terms of Substance, lets us recognise, especially in the case of Descartes, that certain arguments in terms of "necessary truth" are either vacuous or invalid, and the conclusions, when not vacuous, contradict or render meaningless the premises; that a Cartesian dualism is not proven but assumed; and that such a dualism is not a genuine dualism but an abstract division of familiar facts which Descartes, for example, strove desperately to reconcile with the claimed completeness and unity of his metaphysics.

The consequent task is to question accepted accounts of post-Cartesian science, endeavouring to discover whether the assumed dualism determines methodological assumptions or vice versa. Unless this is done, I am left in the position of denying what are accepted "scientific truths"; the actual position is that in the case of psychology (and not only in the case of psychology) we can still find the Cartesian distinction of Mind, "I", Self, Consciousness and Thought recognised for certain purposes, and alongside this the completely uncriticised assimilation of them for other purposes.

4. The final conclusions reached with regard to Substance are:

- (1) It is a category term, and as such relevant to all scientific and fact statements.
- (2) It is a philosophical, formal, or metaphysical term. and not an ontological one (although there are other uses in ordinary discourse and in science), and much confusion has arisen because (a) it has, like thing, a dual function in ordinary discourse, as a class term and as a logical constant, and (b) the two functions have been assimilated by philosophers.
- (3) While "substance" and "thing" are inter-changeable as category-terms, and are so identical in many philosophical uses, a distinction can be drawn between them, and between either and "subject"; while "substance" has a function in the sense of "matter" or "stuff" which can be distinguished in Aristotelian manner from the function of "thing".

- (4) Like all category terms, "substance" cannot appear in fact statements, though it has an established function in questions which demand a fact answer.

As it stands, Section 4 may seem to have little meaning. But one of the main aims of the thesis is to present a doctrine of categories and to show its range of application. In essence, what is concluded is that statements about categories are special types of statement about classes of statements, rather as logical propositions are statements about arguments or components and structure of components of arguments, propositions in grammar are statements about sentences and their structure, statements about class-relations are statements about classes with members. It is, in general, I argue, because such higher-level statements about statements, arguments, sentences and membered-classes are treated as "separate" from their content that they appear as "necessary truths", are treated as "necessary facts", and thus that the existence of "entities" is proven in metaphysical arguments. It is especially such "separate truths" which appear as the content, substance, matter, natural endowment and "forces" or "processes" of Minds.

5. It is the higher level applicability of formal statements that enables metaphysicians to use any set of facts as a proof of what they assume, and makes it necessary for criticism to be extended to a number of apparently distinct arguments to show their similarity or identity. We are thus to be concerned with arguments for the existence of souls from distinctions of predicates (thinking and extension), distinctions of classes (thinking things and extended things), distinctions between subjects and predicates (thinking and its subject-substance), distinctions between existents and ideas, distinctions between kinds of events. Along with these, but different in some ways, are the types of argument which depend upon treating "mental events" (thoughts, sensations) as things sensed, acts with objects, processes, and as "things" which just "appear", or "go on", or "exist", "in minds" or "in us".

6. Aristotle's "world" was a world in which men existed, inquired, and discovered countless things of many kinds, innumerable facts connected in various ways. Philosophy and science are concerned with this world, with these things and with these facts. The "necessary truths" of either science or of metaphysics, or of everyday discourse and so of language, are not meaningless, but they become so when they are severed from their world and are interpreted as proofs that there are not many kinds of things but only two kinds of thing (minds and bodies) or one kind of thing (minds or bodies). Either of these interpretations leads readily enough to a thesis that there cannot be the variety of sciences which in general we distinguish, because there can

be only two (introspective "mind-ology" or theoretical physics) or only one (mind-ology). Because of this it is necessary to pay attention to the question of relations between the different sciences; if dualisms or monisms are taken seriously this is the form they must assume.

Insistence on science focusses our attention again on explanation by concepts and entities which are not to be located in the familiar world. They come under the Cartesian head of "useful hypotheses". If "minds" are such concepts, then they too do not exist in the familiar world. If they are not, then like other things in the familiar world they are not in need of metaphysical or scientific mid-wives in order to make their appearance in the world - they require search and description, not proof of their existence.

It is not clear whether the question of the existence of the mind is a question of fact or of value. It is not clear whether the question of the existence of the mind is a question of fact or of value.

2. The question of the "mind" is not a question of fact. It is a question of value. The question of the "mind" is not a question of fact. It is a question of value. The question of the "mind" is not a question of fact. It is a question of value. The question of the "mind" is not a question of fact. It is a question of value.

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But in declaring men and natural objects to be substantial, i.e. to be substances, and in contending that philosophers have accepted this and never got beyond it, we raise the whole question of substance.

Chapter I.

The Mind with which Philosophy of Mind is Concerned.

Largely introductory, this chapter aims at indicating briefly certain features of the complex confusion of talk about "minds".

1. The galaxy of terms reveals neither consistency nor persistence of meaning, which varies with different periods, and with different schools of philosophy and of psychology at one and the same period. Philosophical schools reveal no regular patterns of agreement and disagreement, and their metaphysical pre-suppositions appear in the complex disagreements of schools of psychology. Neither in the case of facts nor of issues are agreements and disagreements clear.

2. The suggestion that "mind", "soul" and "self" are synonyms, and that we as philosophers need concern ourselves only with "self" is rejected; "self" is quite as difficult a concept as "mind" or "soul", and is not synonymous with either except in special usages. It can be recognised that "self" has an important role to play.

Hume's distinction between personal identity "as it regards our thoughts and cognitions" and personal identity "as it regards our passions or the concern we take in ourselves" is claimed to be compatible with the self-objects being men, who have passions and desires and act in relation to "natural objects".

But in declaring men and natural objects to be substantial, i.e. to be substances, and in contending that philosophers have accepted this and never got beyond it, we raise the whole question of substance.

Socrates, *Tristram Shandy*, V.vii.

"...and these are not the souls of the good, but of the evil, which are compell'd to wander in such places as a punishment for the wicked lives that they have lived; and their wanderings continue until, from the desire for the corporeal that clings to them, they are again imprisoned in a body.

And, he continued, they are imprisoned, probably, in the bodies of animals with habits similar to the habits which were theirs in their lifetime....I mean that men who practised unbridled gluttony, and wantonness, and drunkenness, probably enter the bodies of asses, and such like animals.

Socrates, in the *Phaedo*. (Church)

"Let us now proceed to the doctrine which concerns the Human Soul, from the treasures whereof all other doctrines are derived. The parts thereof are two; the one treats of the rational soul, which is divine; the other of the irrational, which is common with brutes. I mentioned a little before (in speaking of Forms) the two different emanations of souls, which appear in the first creation thereof; the one springing from the breath of God, the other from the wombs of the elements. For touching the first generation of the rational soul, the Scripture says, "He hath made man of the dust of the earth, and breathed into his nostrils the breath of life"; whereas the generation of the irrational soul, or that of the brutes, was effected by the words, "Let the water bring forth; let the earth bring forth". Now this soul, (as it exists in man) is only the instrument of the rational soul, and has its origin like that of the brutes in the dust of the earth. For it is not said that "He made the body of man of the dust of the earth", but "He made man"; that is the entire man, excepting only the breath of life. Wherefore the first part of the general doctrine concerning the human soul I will term the doctrine concerning the Breath of Life; the other the doctrine concerning the Sensible or Produced Soul".

Bacon. De Augmentis Scientiarum. IV. lll.

"I said, "we were not stocks and stones" - 'tis very well. I should have added, nor are we angels, I wish we were, - but men clothed with bodies and governed by our imaginations; - and what a junketing piece of work there is betwixt these and our seven senses, especially some of them, for my own part, I own it, I am ashamed to confess."

Sterne. Tristram Shandy. V. Vll.

"...And these are not the souls of the good, but of the evil, which are compelled to wander in such places as a punishment for the wicked lives that they have lived; and their wanderings continue until, from the desire for the corporeal that clings to them, they are again imprisoned in a body.

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Socrates, in the Phaedo. (Church)

Chapter I.

The Mind with which Philosophy of Mind is Concerned.

A contemporary Hume might well be stricken with melancholy and despair, be "affrighted and confounded", if he surveyed what the history of philosophy presents as the attempts of philosophers to define, describe or explain those activities of man which are the "workings of his mind". A list of the theories in summary form would fill a tidy volume, whose entries would range from what is undistinguishable from simple mythology to the thesis that all information about the working of minds must be won by the hard-headed empirical procedures of laboratories, the noting and listing of behaviours observable by (the senses of) investigators. At one end of the vista is a mysticism wherein all that is concrete and particular is absorbed into a nebulous "mind"; at the other, concrete particulars expel all that has been claimed to be mental so completely that not even everyday mental terms any longer have application. The reduction of Mind to Matter, of Matter to Mind, these claims establish limits only, with an enormous number of incompatible theories in between.

It is not only the number and diversity of theories which prevents schematisation, or the juxtaposing of theories of opposed schools. The greatest difficulty of all lies in the fact that each term employed in the theories - mind, self, ego, soul, experience, sensation, perception, understanding, reason, noesis, noema, idea, concept, mental act, feeling, emotion, passion, affection, conation, intuition, image, impression, sense-datum, even general terms like consciousness,

awareness, intelligence, with or without subtle use of capitals, with or without the verb and adjective forms which add intricate variations of meaning in different contexts - is the source of general and special problems, each the arena of controversy. Most of them have changed their meaning more than once, some without having achieved an agreed meaning at any stage. Indeed, it is doubtful if "clear meaning" itself has a meaning in these contexts.

To the two difficulties, number and variety of theories, lack of precision and persistence in meaning of terms, we can add an obvious third. Any attempt to classify, and so to determine the major types of theory, is refused completeness by the interlocking of theories. Actual controversy between schools shows frequently contradiction and common ground, common ground which may constitute the full gamut of theory for another school. Idealist and empiricist can share the same account of sense-perception and assert and deny respectively innate ideas; major theorists in either school can be shown to embrace incompatible theories or components of theories; Descartes can, with evidence, be held to be the fore-runner of a straight-forward "scientific" view of the human being, and also the founder of a metaphysical thesis (or form of such thesis) which divides the world and the human being so completely that the mental and the physical realms are totally unrelated.

Primitive societies speak of the soul indirectly and with awe, and that as little as possible. The atheistically

inclined and up to date, on a linguistic theory of philosophy, state quite confidently that mind can be spoken of only in metaphor, though admitting that some metaphors are better than others. The sleeping man must not be awakened, say the primitives, for his soul is absent and if he awakens before it returns he will be dead. "Minds do arise, to all appearance, within the physical world; and they do remain, to all appearance, tightly bound to certain physical objects, viz. living animal organisms", says Professor Broad - not suggesting by "appearance" that they have ever been sensed, and not intending to suggest by "physical" other than familiar things in a familiar world, men and women as well as oysters and perhaps onions. When a man dies his soul goes to another world, said certain Egyptians, and certain Greeks who may have followed them, thereafter to return to earth as the soul of man or bird or beast or reptile, according to the moral record of the soul as man's or the man with the soul. When the man dies, so many have said and still say, his soul goes to another world, to reap the rewards of virtue or vice or of the good fortune of having been born a Christian or a Pagan, Mohammedan or Infidel, English or German, Chosen-National or Foreigner, in Hell, Heaven, Purgatory, Elysium, Nirvana or Valhalla. In other versions it stays to haunt its familiar places in one of many diverse forms, or spends its time in a remote place seeking to re-establish communications with those it once knew, even if usually by means of those it did not know.

"According to Hume, the self is a succession of

impressions and ideas which, fleeting and perishing, are in a perpetual flux and movement. This view, variously amended but not transformed, has its adherents today, and is one of the current interpretations of the theory which Lange described as "Die Psychologie ohne Seele". So writes Laird, and continues to argue the complete agreement of Bradley, chief representative of a school completely opposed to Hume on general grounds: "the Ego that pretends to be anything before or beyond its concrete filling is a gross fiction and mere monster, and for no purpose admissible (Appearance and Reality. p.69)". Hegel is, for both those who have read him and those who have not, the metaphysical antithesis of Hume; he is famed as the man who converted the Universe into Mind, Reason and Self-Consciousness. Bradley, though he himself denied it, is regarded as largely an Hegelian. At the core of philosophy of mind Bradley the metaphysician and Hume the tough-minded empiricist and destroyer of metaphysics, are as one.

The soul has been proclaimed an indivisible unity, the essential one, by ancient Greek and contemporary theologian. This remains a conviction of market-place and ivory-tower, reinforced by common usage and logic, self-evidence and argument. The Greeks equally well could use the model of the state with its different classes and class-oppositions as the model for the soul; the Aristotelian classification of souls into the sensitive, nutritive and rational, albeit misinterpreted as a division of souls in the human soul, has collapsed into distinct Faculties, which became literally parts and components

and agents in their own right. The Faculties have been reintegrated and the soul, as Mind, been again divided into distinct - if connected - sets of processes or aspects of a process entitled the Cognitive, Conative and Affective; a trinity which at the moment is as baldly dismissed in some circles as it is unquestioned in others. Measured and converted into Factors, Faculties present us with the One and the Many in a new form, with a strong odour of old wine in new flagons. Nietzsche could say, quite intelligibly, that the way was open for "new acceptations and refinements of the soul hypothesis; and such conceptions as "mortal soul" and "soul of subjective multiplicity", and "soul as social structure of the instincts and passions", want henceforth to have legislative rights in science". (Beyond Good and Evil -12).

In some quarters philosophers still speak of the "scandal of a divided consciousness", a consciousness which, durcheinander as James loved to put it, is self-conscious in fact and by necessity (albeit unwilling to inform itself or others what its perpetually observed simplicity is like, whether as "I" or "Soul" or "Mind"). Yet amid a scream of protests the term "unconscious" established itself as a respectable scientific term, along with con-conscious and sub-conscious and multiple-personality, and the Unconscious is now the hobby-horse of the film and the novel as well as of the analytic retiring room and the lecture hall, indispensable for any self-respecting nursery, in spite of proof of the non-existence of Consciousness and the claims of a dominant psychological school to get along without it.

The Unconscious is seized upon as a useful concept (and no more, a mere hypothesis, an idea with no claim to represent) by yet others, who cannot get along without it, while the leader of the school responsible for its elevation to fame and respectability insists on its actuality, and reduces to an Illusion the god who was the proof and support of the Soul, of the Universe, and of an encyclopaedia of systems of belief about the history of the soul as well.

Most of the vital terms, even if current for centuries, reveal a chameleon-like character, adapting themselves to schools and periods, asserted and denied in any guise adopted. Early Empiricism (in the English variety) denied the natural light which enabled the soul to find certainty in its own creations, yet was forced to look for certainty in the immediate presence in consciousness or to consciousness of unquestionable particulars, sensations or impressions or ideas. As a result "powers" or "operations" of a self or mind were necessary to move from the particulars to the complex ideas indubitably "before the mind" (whenever the owner of the mind did any thinking), and once the difficult search had failed to find any distinction between mind and what was in mind, the old problems of substance and cause and relation, of quality and universal and mode, rose again in a slightly new form and with a revised vocabulary.

The old set of divisions between God and the World, Reason and the Senses, Reason and Fact, Mind and the External,

also re-appeared in different terms and different propositions, with new confusions and new difficulties because of earlier failures to mention sources and an ignoring of the precise theory and argument in those sources. Soul and Mind, L'âme and l'esprit, mens and anima, merge into one another and replace one another, as things which act, things which suffer, what is acted upon, what acts upon, as what has ideas, as the ideas themselves, as operations upon ideas, just as Subjective and Objective merge into one another at a Critical Period and somersault, to the dire confusion of the history of philosophy, as if the distinction between a Noumenal Self and a Phenomenal Self were not a sufficient burden on its own.

The Problem of Terms and Method.

"Generally speaking", writes Laird, "the words 'person', 'soul' or 'mind' may be regarded as synonyms for the self, and it would be mere pedantry to avoid using them as synonyms, unless there is some special liability to ambiguity in the particular contexts in which they are employed. Indeed, the words 'consciousness' and 'mentality' might sometimes be used in a similar sense, although with some inappropriateness and, in the latter case, with a wilful disregard of euphony". (Problems of the Self. Intro. p.7).

If this were intended as a general historical statement it would be ludicrously false. It is intended, however, as an empirical statement of the linguistic uses of his day, and the last almost fifty years have produced some relevant changes in usage and theory. But as such an empirical statement it is false for then and for now in an important way. Indeed, Laird himself goes on to modify it, suggesting that each word has a shade of significance special to it, a shade which it is advisable to avoid stressing at the outset of an

inquiry, and he argues for the superiority of "self" on the grounds that it lacks the "extraneous associations" of "the soul", which is "too aristocratic to have its ancestry scrutinised and its income assessed", is redolent of the "rarified atmospheres of poetry and theology" and leads to special questions and the ignoring of the possibility of a soul being "ignoble, and, what is worse, occasionally dull".

That there are advantages in speaking, in such an inquiry as Laird's, of the "self" rather than of the "soul", we might agree, without committing ourselves to the view that the advantages were philosophical. While there are, as Laird notes, a great number of sentences in which the words 'self' and 'soul' (or 'person' and 'mind') are synonymous, there are in fact many sentences, which have equal linguistic justification, which show impeccably good taste and good usage, in which the terms are not synonymous and could not be interchanged at all; and there are, further, a great number of sentences in which the word 'self' appears with a meaning completely different from that which it has in other sentences, i.e. sentences in which the same word appears. (What is the connection between "To thine own self be true" and "The self is given to self in every act of thought"?)

Restricting oneself to discussion of a single term, and to selected uses of a single term, in such connections as these, results simply in the masking of issues which would be obvious if the "synonyms" were in fact used. We shall later meet a claim that Descartes meant by "a substance"

that it drew in the distinction between personal identity and it

no more than "a thing", and the suggestion that when this is recognised all major difficulties in understanding Descartes will disappear - and I shall be arguing that very frequently the only sense we can make of his uses of "substance" depends upon its identity with "thing"; but when we contemplate what the Cartesian writings would resemble if we did put "thing" for "substance" throughout, the result is rather caricature than interpretation. If we try and picture the many volumes philosophers have written with "self" replacing "mind" and "soul" the result has a nightmarish quality about it, a quality which some of us at least have found to attach itself to notions of the Self.

Every major philosophical theory, whatever its general nature, has to give some account of the self, and when metaphysicians have finished speculating about its primacy and simplicity, or its synthesising complexity, when empiricists in search of it have failed to find it, when it has been declared a fiction, and when moralists have evaluated it and produced a personal self, a moral self, a social self, we still have to encounter the philosopher-psychologists. They produce, like James, a hierarchy of Me's as known selves, with a bodily me at the bottom, a spiritual me at the top, and various material and social selves between, before approaching the Self as Knower; or, like Freud, they produce for us an Ego, and Id, a Super-Ego, each of which is somehow a Self and part of the Self.

Laird, indeed, might have noted a distinction which Hume draws in the Treatise between personal identity "as it

regards our thought or imagination" and personal identity "as it regards our passions or the concern we take in ourselves" (IV.6). It is the first - the epistemological ego - with which Hume professes to be concerned, and it is this self which Hume declares to be a fiction. It is the same self (or almost the same self) which Bradley declares to be unreal, although Bradley's discussion, in places, is like Hume's so confused that this is obscured. Hume's central difficulty is his general theory of perception or of ideas, since what is known is an idea and so an "object of consciousness", and the second (non-epistemological) self in so far as it can be known is idea and so object, and as "object of consciousness" it is, in typical idealist fashion, "object" in relation to "a self as subject". But the second self, when the distinction is made, is the empirical self; it is the self of usage in which the word is synonymous with "the man", "the person", synonymous with "he" or "Socrates" or "Hume".

It is the self of "know thyself", a phrase which stresses self-ignorance and the need for study of what one is; it is diametrically opposed to the simple self-conscious subject-substance the necessity of whose existence is established by metaphysicians. It is this last pure knowing and self-knowing substance which Hume claimed to be a fiction, Bradley to be a mere monster, and many to be the foundation of all science and of the universe as we know it. I shall endeavour to show that it is the empirical self which is used

by philosophers to give plausibility to their talk of the subject-self or consciousness or mind-soul.

It is the mind-soul-self as consciousness with which Descartes begins when he is concerned with a method of procedure in science and the establishment of a logic of inquiry, and this is part of what for him is doing metaphysics. It is very different from the other part of metaphysics, demonstrating that God exists, that the thinking-thing is immaterial, and immortal; and as metaphysics flowers into science, a science of man and morals, we have other questions raised, and Descartes, like Hume, is forced into a treatise on the passions. What Descartes needs for his metaphysics is some thing capable of thinking, and a thing capable of willing and attending, a thing which, like the Socratic soul, is capable of a passion for truth and knowledge which can overcome other passions. A doctrine of a will-thing which is conscious and capable of thinking, or of a thing-with-a-will which is capable of thinking, emerges from the Descartes who turns his back upon metaphysics in order to get on with investigation; and such a thing is capable of carrying out an investigation of itself as a "self" which is "self-interested" and passionate. We approach the "Gyntish self" of Ibsen's drama:

..... is the host
of wishes, appetites, desires -
the Gyntish self, it is the sea
of fancies, exigencies, claims,
all that, in short, makes my breast heave
and whereby I, as I, exist.

This is the mind-soul-self which can be described by the

Platonic Socrates in the metaphors of political and social class-structures; it is the mind-soul-self of which Nietzsche spoke, and of which Freud is speaking; and it is the recognition of this mind which enables psychology to become more than a muddled off-shoot of logic, a science which described the relations between the effects of an unknown substance upon an unknown substance (so Mill presents it), a mystique of ideas and relations, of subsistent entities whose persistence was as necessary and as unaccountable as was the entity in which they subsisted.

Hume, indeed, denied that if we sought this self we could ever find it. What we find are particular "perceptions" which include for Hume "heat and cold, light and shade, love or hatred, pain or pleasure" indiscriminately. If "perceptions", like "ideas", are "mental", it follows that the self as subject can never be known, unless knowledge (as knowing) is a relation between one idea and another - an impossibility which Hobbes and Descartes recognise. If Hume is in his realistic mood, what he is saying is that "reflection" shows that we are aware of tables which are round, bodies which are cold, people who are angry, a glow of pleasure felt as a state or condition. He would not be at all perturbed by our talking in an Aristotelian fashion of a hungry man searching for food, recognising and rejecting stones as cold and inedible; at our treating "man" as the subject of awareness-statements; at our permitting Socrates to say that Plato was thinking and Plato to say "I am thinking", and

both to say the same thing, to describe the same event, one using a proper noun and the other a pronoun. This possibility, the possibility of this occurring, it may be admitted, is what gives rise to problems; and all I wish to do here is to suggest that it makes problems both possible, and possible of solution by looking further afield, e.g. by discovering more about the man who talks about himself as we talk about him.

Philosophers, however, have preferred to take Hume's failure to find "his self" as confirming the existence of a self which can never be known as object, which can never be known in the way that anything else is known. No further questions can be asked about it; and so it resembles a "concept", and yet this produces the old riddle, that what thinks cannot be a thought, what conceives cannot be a concept. How close this is to Descartes we shall see. But equally it produces another riddle: What is the difference between saying that a thing cannot be known as object, that a thing cannot be known at all, and that we have no justification for talking about it at all?

What sense can be made of the statement: "I can never be aware of myself as object?"; or of the statement "In knowing an object I am aware of myself as knowing the object"; if the "self" is not "object" in either case? And, in more sophisticated theories, if the self is necessarily known as object, and the self knows itself in every act of awareness, how do we avoid an infinite regress in every "act of knowing"?

These arguments, these difficulties, are not novel. We can find them arising in Aristotle, find them in Descartes and in his critics, and they are inevitably bound up with the notion of substance and simple substance, of subjects which are simple while their attributes are diverse, of subjects which must be grasped wholly in thought for thought to be possible. It is with the notion of "substance" that I am primarily concerned, in part with its history but only in part. If the historical confusion in accounts of mind and of substance were purely a matter of history and were not present in our contemporary thinking, there would be little justification for bothering about the vanished muddles of the past. The philosophical problem is to find and in some sense to isolate the variant treatments of "substance" and to find the relation between them, in an attempt to show that the difficulties and apparent conflicts in theories are philosophical.

And since I am concerned with "substance" one further point needs to be made briefly in connection with Hume. "Ideas" can be treated as "subsistent entities" while there is a substance to which they belong, in which they inhere, or of which they are modes - the words we choose to say this are momentarily unimportant, though they will propagate their problems later. Accept the Cartesian notion of "ideas", and deny the reality of the substance which supports them, and they become substantial - ideas or perceptions are independent things, things of a mental kind; and together, since

they occur in relation, they constitute "a mind", which is substantially distinct from body or bodies of any kind. The mind, in the curious mixed metaphors which hide the difficulty of the very conception, is "a kind of theatre", a stage on which perceptions "pass, repass, glide away and mingle in an infinite variety".¹ The mind is container and contained, somehow a player on itself as a stage if it acts, a stage and players and something in the stalls if it watches the drama of ideas. If we ignore the mind or self as the agent, we have the problem of "ideas" as a special sort of substance, and we must take some account of it or of them as substantial, as well as of its dynamic, fluid counterpart, the "stream of consciousness". It is not enough for a philosopher to say that these are different ways of speaking suitable for different contexts or for different purposes, or that they are metaphorical ways of talking about the same thing, the same facts, the same occurrences.

Descartes, claiming occurrent fact as evidence in the same fashion as Hume, found the self in every act of mind, the mind in every thought, and he found it clearly and distinctly to be incorporeal thinking substance. For Descartes, self and soul and mind are synonyms for at least part of the time; for at least part of the time Descartes moves directly from the self to substance; Hume, raising the question of what is

1. Hume still - Treatise IV.6.

meant by talking of "substance" and "inherence in substance" - questions which I want to raise - reaches something of my conclusion, that most of the arguments for substances establish nothing of the distinctions and "existences" which they purport to establish, that most of the arguments are indeed meaningless. Yet neither Hume's arguments nor Hume's central position are acceptable to me, since I find the doctrine of Ideas in Hume, in spite of his variations upon Locke, both Cartesian and inadequate.

Hume's dilemma will be resolved only when the attack he instigated on "substance" is carried through from the subject he rejects to the objects he accepts, the little bits of mind which replace the single mind - and do so only by a change of attention. Hume saw Locke's difficulty, that he needs a spectator, a producer, a theatre and a cast, and that it must be maintained that the mind-play goes on being produced only while the spectator is present, but when we try and give an account of the spectator we can talk only of the play and its production. When Hume (in Treatise IV,5) routs "substance" and establishes that "perceptions" are independent existences, he does so by the same argument that Descartes uses, and claims that the "perceptions" are substances "so far as this (accepted) definition explains a substance". But they are not "always perceived" - and the maxim Hume is driven to is that an object may exist and yet be nowhere, and that "the greatest part of beings do and must exist in this way".

What Hume wanted to maintain is not very difficult to see - that looking at and seeing, or touching, olives and figs on a table is different from tasting the taste of olives and figs. Look-seeing and touch-feeling are quite different activities from imagining and conceiving and reflective thinking; man, as looking-touching agent, is spectator and sees and feels what exists and is somewhere, but he is otherwise concerned with objects which cannot be meaningfully said to be in things (as flavours in figs) which exist and are somewhere.

If Hume could stick to this, he would be maintaining a view that appears to be both common-sensible and the foundation of Cartesian theory. But in fact Hume can only maintain that there are different classes of "objects" which are all "perceptions", and that "man", as a substance related to substances it is said to perceive, has to be "established" from individual and distinct perceptions. But...perceptions cannot perceive...."existing nowhere" applies to unexperienced perceptions, ideas while not presently presented to us by consciousness.... While he sticks to "perceptions" which depend for their existence upon a perceiver, something which has impressions, he is in exactly the same position as the Descartes of the Meditations and the Descartes with a special theory of perception as "being affected by" - the problem is not to show that objects exist and yet are nowhere, but that some objects may exist and be somewhere. The spectator sees the play, the procession of ideas, and the question is to show that part of the play is really going on somewhere, and

that it goes on somewhere whether it is watched or not.

I am not going to consider Hume in detail, but he serves to illustrate what I shall contend, that we need to cut deeper than he cut in order to establish what he wanted to establish. That he succeeds in converting the problem of substance from one form into another indicates that what we need to examine is the whole concept. To do this we must turn at least half aside from the heights of metaphysics and the clear and distinct dubiety which attaches to all talk of Ideas, and raise such a question as whether or not in such an account as "I saw the glass, thought it contained beer, drank it, and immediately vomited my head off", it is the same "I" who is concerned throughout; and the same "he" or "man" if instead of "I" we write "he" or "man".

If I am right, and the statement is intelligible; if, further, it is such a statement that gives rise to philosophical problems, then philosophers have never, in spite of their formidable volume of theories of minds, souls and selves, of material substance and substrate, succeeded in getting beyond the substantive sameness of "the I" who am a man, or the substantiality of glasses and beer. The penalty of declaring this substantive sameness is not being compelled to claim that man is a simple substance, if not a simple soul. Simplicity is a further question, and in proving to be a very complex one it illustrates a central philosophical point, that when terms are correlative in use, trying to consider them in isolation from one another will always result in paradoxes.

Chapter 11.

The Problem of Substance.

"Substance" presents most of the problems that were found with "mind" and "soul". Metaphysical theories can be compared by reference to their doctrines of substance, and these theories are implicit in scientific theories. The different issues discussed below can and must be discussed in relation to different and apparently conflicting schools of scientific thought, and different and apparently conflicting schools of philosophical thought.

What we are in quest of is an understanding of what the different schools accept in common as true, and as valid modes of argument; and this is clear neither in metaphysics nor in science. Nor is the relation between metaphysics and science clear.

It is contended that the contrast between Aristotle and Descartes clarifies the whole field with which we are concerned, but for reasons stated the contrast cannot be made simply.

(p.25). Like "thing", "substance" is a familiar word and presents no difficulty in use. We are familiar with many things and many substances.

But many have found it clearly intelligible that the world should consist of one substance or of two substances, and this is argued about by thinkers without there being felt need for earnest research. The multitude of familiar substances or the many chemists' substances are seemingly compatible with various claims as to one "corporeal" substance and as to what that one substance is. This substance is argued to, is claimed to be necessary, and this seems the case with all "ultimate substances". The arguments seem to be like ordinary arguments, but the variety of conclusions reached is fantastically different from the conclusions of ordinary arguments.

2. Answers to "What corroded the knives?", in an actual case of corrosion, considered. A factual (discoverable) answer is defended, and held to be primary. Descartes' rejection of "virtues" and "powers" is mistaken; "x has the power to do Y" is correlative with "x does Y", and beyond "x does Y" fact-statements will not take us.

If chemists' atoms are occurrences, we have empirical problems of how atoms behave, and of how their behaviour explains. If they are argued to from facts, then "explanation" demands consideration. Treating "powers" as

"explanatory" and as "things" is the error - and it will be argued below that Descartes commits it.

3. Descartes' answer to "What thinks?" is related to answers to "What corrodes?" No empirical answer seems acceptable to Descartes, and this makes the question "How are thinking things related to bodies?" peculiar in character.

Philosophical questions and their answers seem to be different from scientific and factual questions and answers. Different forms of philosophical argument, held to provide answers and especially relevant to Descartes, are discussed.

1. From act to necessary agent. This may give us tautologies, but (a) it does not give a dualism, and (b) human values as subject in answering "What thinks?" give meaning to the dualism

2. "q and r and s are true; p explains q and r and s; therefore p". Descartes wants to reject the conceptualist's modal p (p may be the actual explanation), but for him p is necessarily true, and his difficulty is to show that it is actually true. He cannot avoid basing the argument on the factuality of q, r and s - and these are facts to be explained.

3. The Regulae doctrine of simple notions fails to provide what is needed; observation statements are still the basis of actuality-claims.

Descartes' central problem, it is argued, is that man and his observation statements are "primary" to his science and to his philosophy.

(1, 2 and 3 above are themes which require detailed presentation below).

Descartes, Principles, I, 11.

"For we have no other idea of substance, as a thing in itself, except that it is a thing in which certain attributes, or eminently this property or quality which we perceive, or which is objectively in some one of our ideas, as we are taught by the natural light that nothing can have so real attributes".

Descartes, Ref. to Reply to Objections II.

"The peripatetic philosophy asserts the original matter to be perfectly homogeneous in all bodies, and considers fire, water, earth and air, as of the very same substance; on account of their gradual revolutions and changes into each other. At the same time it assigns to each of these species of objects a distinct substantial form, which it supposes to be the source of all those different qualities they possess, and to be the foundation of simplicity and identity to each particular species. All depends on our manner of viewing the objects. When we look along the insensible changes of bodies, we suppose all of them to be of the same substance or essence. When we consider their sensible differences, we attribute to each of them a substantial and essential difference. And in order to indulge ourselves in both these ways of considering our objects, we suppose all bodies to have at once a substance and a substantial form.

The notion of accidents is an unavoidable consequence of this method of thinking with regard to substances and substantial forms; nor can we forbear looking upon colours, sounds, tastes, figures and other properties of bodies, as existences, which cannot subsist apart, but require a subject of inhesion to sustain and support them. For having never discovered any of these sensible qualities, where, for the reasons above-mentioned, we did not likewise fancy a substance to exist; the same habit, which makes us infer a dependance of every quality on the unknown substance. The custom of imagining a dependance has the same effect as the custom of observing it would have. This conceit, however, is no more reasonable than any of the foregoing. Every quality being a distinct thing from another, may be conceiv'd to exist apart, and may exist apart, not only from every other quality, but from that unintelligible chimera of a substance".

Hume. Treatise of Human Nature. I.IV.111.

"...It must be remarked, as a matter that is highly manifest by the natural light, that to nothing no affections or qualities belong; and accordingly, that where we observe certain affections, there a thing or substance to which these pertain, is necessarily found".

Descartes. Principles. I.XI.

"For we have no other idea of substance, accurately taken, except that it is a thing in which exists formally or eminently this property or quality which we perceive, or which is objectively in some one of our ideas, since we are taught by the natural light that nothing can have no real attribute".

Descartes. Def.V.Reply to Objections II.

Chapter II.

What Is the Problem of Substance?

From the Problem of Human Nature. I. IV. III

...it must be remarked, as a matter of fact, is clearly manifested by the natural light, that to possess no affections or qualities belongs; and accordingly, that when we observe certain affections, there a thing or substance to which these pertain, is necessarily found."

Descartes. I. XI.

"For we have no other idea of substance, accurately taken, except that it is a thing in which exists formally or eminently this property or quality which we perceive, or which is objectively in some one of our ideas, since we are taught by the natural light that nothing can have no real

PRELUDE.

It is a central contention in this thesis that the problem of Substance is relevant to every phase and aspect of the confusion indicated above: the confusion reflects the heterogeneous metaphysical theories and the methodologies and logics based upon them or upon assumptions which are implicit metaphysical theories, and the most illuminating point of comparison of metaphysical theories is their account of Substance. The contrast between Descartes and Aristotle, it now seems to me, is sufficient to clarify the whole field of philosophy and science, but bringing out the contrast clearly is exactly the difficulty.

When an issue arises between men in daily living, or between scientists in a particular field, it can be settled or reduced to an insoluble clash of demands, unverifiable assertions, or "value judgments". It can be settled if facts are accepted which are related by accepted forms of argument to the question at issue. Traditionally there is no parallel in philosophy, and in fact it is not the case with arguments between different sciences, or in the higher realms of a science. The last is illustrated by contemporary physics, the second last by disagreements between physiological or neurological and "mentalist" schools of psychology. Yet if there are genuine issues, if there is any real sense disagreement, there must be common mode of belief and common mode of argument. This

holds true of philosophy, and the philosopher is in the situation of having the responsibility in terms of his tradition of finding such common beliefs and common modes of argument in the case of a clash or apparent clash between sciences, and at the same time he find a whole set of radically different and apparently opposed philosophical theses each of which gives a different "interpretation" of the scientific clashes.

Every issue which is raised below has a variety of philosophical accounts, explanations and perhaps "solutions". Each issue can be discussed in relation to such accounts and solutions, and the result will be a metaphysical encyclopaedia. Each issue, even in the case of the physical sciences, can be discussed in relation to different sciences and different schools, and a further encyclopaedia be begun. Every issue seems to demand both treatments, philosophical and scientific, and this it is obviously impossible to undertake. Nor is it possible to justify a starting point simply, nor to develop an argument in an order which satisfies our demands for clarity and distinctness and ready intelligibility.

Even Descartes and Aristotle cannot be simply and directly contrasted for at least the following reasons:

- (1) Interpretations of Aristotle, i.e. accounts of Aristotle's philosophy, are varied, and there is possible no readily acceptable account of his central doctrine. Until the background of his developing theory is studied, what is philosophical in much of Aristotle's apparently simple statement

and argument is not apparent at all. From the De Anima I conclude a doctrine of individuals as substances, and of talk of souls as talk of acts and powers of individual organisms; others derive a doctrine of a soul separable from the body. I admit the difficulties, but plead guilty only to considering chapters and not a single dubious phrase.

- (2) The case of Descartes is even worse, since in fact he holds a variety of positions, and interpretations of these are as wide as those of Aristotle. I shall spend time in the early pages indicating how complicated is the Cartesian treatment of substance especially.
- (3) It is impossible even in a large volume to present in detail the philosophy and science of each of them.
- (4) An endorsement of Aristotelian doctrine in various fields runs counter to dominant contemporary schools of logic and of science, schools which are regarded as legislative in their fields and as having completely superseded Aristotle.
- (5) Traditional philosophical concern with the determination of categories, which runs from Aristotle to Kant, Hegel and Alexander, is no longer sufficiently alive to make it possible to argue in a readily intelligible manner in terms of categories.
- (6) Contemporary philosophy and science is so much in the Cartesian tradition, without having criticised the metaphysical basis of that tradition, that what lies outside its assumptions appears to philosophers and to scientists as simply false or incomprehensible because it contrasts with obvious "facts" or the primary requirements of science.
- (7) The divorce of philosophy (and logic) from commonplace facts is so complete that it parallels the divorce of science and such facts in the accounts of what science is given by philosophers and scientists. It is true that scientists and methodologists do pay lip service to facts as a foundation for science, which is the ordering of such facts, the devising of concepts, the statement of laws and explanations in terms which do not appear in the fact statements at all. But the sundering of facts and science is one version, and an important version, of the problem of mind and body, and if the sundering is accepted, makes that "problem" insoluble.

- (8) Cartesian physics and physiology (even if neither began with Descartes, i.e. Descartes has become the banner of a long-standing movement) in fact makes commonplace fact-statements meaningless, or meaningful in a way irrelevant to science. Subjective-objective antitheses are as much accepted by scientists as by philosophers, and the insistence upon commonplace facts is treated as evidence of naiveté or of a complete ignorance of science and of philosophy - either as the assertion of the obvious which everybody knows, or the assertion in a crude and pre-scientific form of what science has made clear and distinct. That the same familiar field of human behaviour is made clear and distinct in several ways and in a variety of unrelated jargons by rival schools seems to arouse no doubts about the validity of each school's own method.
- (9) To philosophers concerned with special problems or the problems of special sciences, and to scientists concerned with their own science, general issues are of little or restricted interest. They lack the vocabulary for the raising of general issues, and in fact have done much to destroy the vocabulary once used by philosophers for the raising of such issues. Hence a discussion of the difference between Aristotle and Descartes directly in terms of their treatment of categories, or of their treatment of substance, universals, modes and attributes, is impossible, without some discussion of each of the terms, although the question of difference arises in the case of each of them in these terms and the questions themselves can be demonstrated to arise in all discussions of logic, method and science.

.....

A point of beginning cannot simply be justified, cannot be even explained. I have decided to begin with a general discussion of Substance and its relation to Cartesian theory, in order to bring out how confused the background is, how many distinct issues are raised by Descartes even when he is concerned with mind as a thinking substance, a thing-agent,

and how impossible it is to settle any issues in the modes of discussion which Descartes adopts. The first section serves to show what happens when we bring together a number of Descartes' clear and distinct principles, and the most positive argument is designed to show that if we treat the Cogito argument simply we are neither "dealing" with Descartes nor raising the mind-body problem in a meaningful form.

It serves also to raise the question of a distinction between logic and science, between metaphysical and scientific and fact statements, which is a central issue between Aristotle and Descartes, and for any philosophy of matter or of mind, in fact any philosophy and any science at all.

Indirectly, too, it introduces the suggestion that Aristotle was not an accident in space-time but a post-Platonic philosopher, whose science and whose philosophy involve not the assertion of facts by a naive interest but the re-assertion of facts by a philosopher who had discovered that metaphysical abstractions - matter, atoms, numbers and forms, motions and reason - were abstractions from concrete occurrences, and that metaphysical entities were entifications of logical distinctions. Whatever Descartes did for mathematics and for physics, what he did for logic and for theory of mind was to restore the pre-Aristotelian entities in an even more vacuous form than that which they held originally. That, however, needs much

demonstration, since it is now incumbent upon a realist to prove that for philosophers and for scientists there can be apples on trees and trains running between stations which are not "complex ideas" in one's mind, made up of odd "influences" of unknown bodies and some unjustifiable inferences about causation. — It is true that the term "appears" in philosophy is used in a special sense, but the sense in which it appears in ordinary language is the sense that contemporary philosophy has in mind. —

In familiar discourse we use the word "thing" in a sense and understanding the word, and feel no need to explain it. Indeed, many of our problems are created by the fact that we do not understand it. It seems, rather, that the word "thing" is so native to us; we do not need to explain it, we learn what it means, as we do with "rose" and "raspberry". Both the latter terms, like many names for things, we can teach with facility, but confronted by the question "how would you teach someone what 'something' means?" or "what 'thing' means?", we are rather at a loss. If someone can distinguish chairs from tables, roses from raspberries, he seems to have grasped already the notion of 'thing'; and if he can distinguish roses from colour, sugar from sweetness, he seems to have grasped already the distinction between substances and their attributes. This is, in very large part, what Descartes meant when he added in

What is the Problem of Substance?

The problem of substance, as Wittgenstein might have said, is something that can be shown and not stated. It is platitudinous to say that philosophers have been concerned with it, that every philosophical system has some thesis with regard to it; it is equally obvious that the term appears in everyday discourse with something at least of the sense in which it appears in philosophical treatises, and that contemporary philosophers have little if any use for the term.

In familiar discourse we have no difficulty in using and understanding the word, and feel no call to explain it. Indeed, many of our problems are stated, our difficulties explained, by using it. It seems, rather like "thing", to be a notion that is native to us; we do not seem to have to learn it, to learn what it means, as we do with "rose" and "raspberry". Both the latter terms, like common names for things, we can teach with facility, but confronted by the question "how would you teach someone what 'substance' means?" or "what 'thing' means?", we are rather at a loss. If someone can distinguish chairs from tables, roses from raspberries, he seems to have grasped already the notion of 'thing'; and if he can distinguish roses from colour, sugar from sweetness, he seems to have grasped already the distinction between substances and their attributes. This is, in very large part, what Descartes meant when he added in

Meditation III the notion of 'thing' to a list of "simple notions" which elsewhere (in the Regulae, in the Principles) includes "thought", "existence", "unity", "certitude". These notions are most familiar, completely grasped, unerringly used, on Descartes' account of them. In the case of 'thing' the point seems trivial enough; but when we have grasped the combination of universality, lack of particularity, the familiar ease of use, and the claim that if we did not have the "idea" of thing somehow in mind we could not distinguish babies from chairs, any thing from another thing, we begin to grasp what Descartes meant by innate ideas. The triviality vanishes when we realise that Locke, who spent so much time demonstrating that there were no innate ideas, having scoured in his curious way the rooms and portals of the storehouse "mind", demonstrated (a) that we have no idea of "substance" (which is here indistinguishable from "thing"), (b) that we could not acquire the idea by any possible means, (c) that we could not think as we do unless we had such an idea, and (d) that we have "no such clear idea at all", but "only an uncertain supposition of we know not what, i.e. of something whereof we have no particular distinct positive idea, which we take to be the substratum or support of those ideas we know".¹

In a sense our main concern is to be with the passage from the familiarly intelligible to the unintelligible of "thing" as substance-subject-substratum. At first glance, the question seems remote from a familiarly accepted use of "substance", one

which enables us to say that in the world around us are many substances, corrosive, sticky, liquid and solid substances. Plastics, we say, are useful substances, because they are so easily moulded and they harden to the strength of metals. Many things, quite different in appearance and behaviour, we recognise as being of the same substance.

Is the question remote? That the world should be ultimately made of one substance has seemed an intelligible and plausible possibility to many, an intelligible and a necessary condition of there being one world, to a large number of philosophers, and a very great number of scientists.

At least since Descartes, who popularised a doctrine, the majority of people in the Western world have found it clearly and distinctly necessary that there should be in the world two substances - one corporeal or matter, and one mind or spirit. They state this as easily by "Mind and matter" or by "Minds and bodies".

Metaphysical doctrines seem to be just like commonplace statements about things and what they are made of, if bigger and better, easier to grasp, and not demanding earnest research to establish them, as is the case with a chemist's thesis that graphite, diamond and coal are the same substance. They are much more like obvious facts than arduously acquired theories.

Philosophers, like scientists, have disagreed, but the disagreements were not about "substance" but about what the Substance is or what Substances there are. Thales said, in his primitive way, that the ultimate substance was water;

it might be air, carbon, plastic, or wood.

others said it was air, particles, atoms, matter, extended substance; and now modern science has progressed so far that we know it is force, or energy, or electricity, units of electrons or protons, or hydrogen nuclei. In primitive periods the thinking substance was breath, was gas, was fire; later it was regarded as experiences, sensations, impressions and ideas, a flowing stream of awareness, consciousness, spirit, a spiritual substance, a thinking substance.

There are peculiarities about the historical picture. We (sometimes) admit to having doubts about what precisely any of our predecessors meant, but presumably everyone at least thought that he knew what question he was asking, what question everyone else was asking; at least each one knew that the others had given wrong answers. (And, admittedly, I think that I know what question was being asked, although I join Aristotle, Leibniz and Hegel in saying that none of the answers suggested above are possible answers to it). But there is a more striking peculiarity. Substance, is, for all theorists, closely concerned with the familiar things around us - otherwise all talk of it is meaningless; yet when empirical, particular problems arise in connection with substance or substances we seem, while concerned with finding what substance is in question, concerned with finding which of many substances is in fact an answer or a solution, and are satisfied that the goal is reached when we cease to use the term "substance" at all, when we are able to refer to sulphuric acid, carbon, plastic, or treacle.

We are always concerned with this substance rather than that, and with showing that in fact this substance is involved. But for metaphysical and higher-scientific solutions, the goal is reached by showing some substance to be necessary, and there is seldom, if ever, any question of showing that it is in fact involved; and even if the term "substance" does not appear in the answer, as it invariably seems to do with Descartes, the substances referred to are very different from the substances which empirical investigation detects and whose connection with other things it shows. There is never any question of someone showing us a portion of the metaphysician's substance after a piece of empirical investigation; no question of someone showing us that apples are made of such a substance as we can show that ice is made of water by melting it or by freezing water. We are confronted with arguments, and arguments whose logic seems to be the same logic that we employ in empirical research and common discourse, similar in the sense that the conclusions do not depend upon special types of arguments, quite unfamiliar to mere mortals, designed to meet the non-empirical situation. But it is also fairly apparent that our general modes of argument do not produce conclusions like those of the non-empirical arguments, nor is there, in our general arguments, such a variety of claimed conclusions to a single inquiry, silly as many of our arguments and answers may be.

From this brief survey, it would seem to follow as four principal points regarding "substance":

(i) that 'thing' and 'substance' are special nouns, important nouns, but very familiar. We know what they mean, can use them, and illustrate them, very easily.

(ii) We do ask questions about what substance (or substances) a thing is made of (or consists of - there is no special point of "fabrication" at issue here), and expect an answer, which will be in terms of this substance as distinct from that.

(iii) Philosophers' questions about substance do not seem to have been like this (and one of the reasons, I suggest, is that philosophers have wanted to ask the question "Of what substance?" of the answer to any question indicated in (ii)).

(iv) Philosophers argue to their substance or substances, by modes of argument which seem to have the same logical character as our familiar arguments, although the results seem very different from those of ordinary arguments.

2. Part of what is involved here can be illustrated by one example. I return to my flat after a period of absence, and find that all my cutlery has corroded. I have then all the necessary evidence that corroding has occurred, and the inference, since such has not occurred before, is that there is or was a corrosive substance present with the cutlery. But as an answer to "What corroded the cutlery?", "A corrosive substance" seems completely empty. Its only force is to

insist that the corrosion was not just a process which went on in the cutlery without an external agent being present. (And no explanation is given by saying that knives are material objects, or made of matter, of atoms, of "extended substance". That they are made of steel is relevant, because it insists on a difference between knives and the glass and china which do not corrode or did not corrode). The question is "What substance did it? What thing, what substance, was responsible?" ¹

The answer might be "Salt in the air - there have been many sea breezes", or "The jar of acid on the shelf above has cracked". The general form of the hypothesis which guides an inquiry is disjunctive within the field of our existing knowledge - a or b or c - without a conjunctive answer - a and b - being ruled out, or the possibility being excluded of it being something which we have not previously encountered as corroding metal. Scientists may also be concerned with studying corrosion itself, and having discovered that oxidation is involved, or the formation of metallic salts, they may investigate further what the corrosive substances have in common.

1. We approach here questions of the "assumed uniformity of nature", or a first principle that all things continue unchanged unless something causes them to change. The relation of these "assumptions" and "principles" to substance and thing must be considered, but it can scarcely be claimed that they are components in ordinary arguments (unless as "unconscious" but universal ideas).

1 Cf. Mill System of Logic V. vii

Not even the comparatively recent divorcement of philosophy from science (natural philosophy) can obscure the fact that this sort of hypothesis and investigation is not the philosopher's path to substance. The example is worth probing a little further, for this reason and for the further reason that it illustrates a point at which science seems to follow the philosophical tradition. Both reasons are intimately connected with the Cartesian procedure.

Descartes rejects the doctrine of "virtues", according to which the discovery that a and b and c corroded knives would have been stated as "a and b and c have the virtue of corroding steel" or "there is a corrosive power or principle or virtue in a and b and c". Such virtues or powers or qualities are, for Descartes, occult and scientifically damnable, and a line from Molière¹ has proved sufficient to exclude them from later science and from philosophical consideration; unfortunately, like "substantial forms", their implications have also been excluded from philosophical consideration. Certainly talk of virtues and powers does not get beyond the facts, beyond "a and b and c do corrode steel", but only if we reject facts as explanatory will we reject "a is present" as an explanation. Recognition of the presence of a as an explanation is not affected by our inability to explain how the steel is corroded of the formulae statements from facts, and the implications

1 Cf. Mill System of Logic V.vii

by a, and if we note differences between a and b and c, and an identity in the various corrosive processes, we may go on to discover that oxygen is present in a and b and c, and to explain the corrosion by the presence of oxygen. Our account of corrosion is now much more complicated, since our account of the constitution of a and b and c is much more complicated; but we have not got beyond the fact that oxygen does under certain circumstances combine with metals, that oxygen has the power or virtue of combination with metals. Only if we replace 'corrosion' by 'oxidation' and treat "oxygen oxidises and forms oxides" as a self-contained statement is there any element of "rational necessity" in our explanation, an element of rational necessity which enables us to say when we encounter corrosion that it is oxidation and there must be oxygen present.

Setting out an equation with symbols and plus and equal signs looks impressively exact and different, looks self-explanatory and necessarily true, but it incorporates the corrosion statement (which is primitive enough), the oxidation statement (which is sophisticated), and a fact claim about regular ratios of combination (at least), while ignoring the conditions under which combinations do take place, and the question "why?" can still only be answered by "such is always so". What I am trying to indicate is the lack of independence of the formulae statements from facts, and the implications

which this lack of independence has for statements about chemical atoms. If the atoms are explanatory concepts, which establish a rationale for regular relations of weight, then the factual weight-combinations are the regularities which give meaning to the statements about atoms; if atoms are existing things, we have only statements about how atoms do in fact behave, and much more to discover about atoms, i.e. it is fact-statements about atoms which function as explanations or as re-descriptions of previously observed processes.

Atoms cease to be rational entities or philosophical substances as soon as they are established as existing things, and the relation between gross things and atoms becomes an empirical question. Until such relations are established we are left with the enormous gap between (a) a world of unchanging atoms whose patterns of combination do change, and (b) a world of gross things and qualitatively different occurrences, vaguely claimed to be "reducible" to changing patterns of atoms. Descartes' general position is at times clearly indicated: the corporeal world is not a world in which qualitatively different changes do take place. Even the variety which is promised by a large number of different kinds of atoms must be denied: in the case of extended particles the only real differences are of size and shape and motion relative to other particles, all

particles being substantially identical. They are unobservable but real; and they must be argued to from gross phenomena or there is no point in talking about them at all.

(And, I suggest, the question of "substance" is completely answered: the question that remains is that of the actual structure of gross bodies. Descartes would not accept the argument that the particles must be argued to - when his procedure is consistent it requires that we know the explanations before we know what is to be explained. But as he is forced to admit at the conclusion of part IV of the Principles, when we are concerned with observable occurrences the necessary truths of his rational physics become merely possible truths, and at best probable truths when the argument is added that they do in fact explain many occurrences. Hence the claim is: "q, r and s are true; p explains q, r and s; therefore p". What must concern us is the nature of "explains" in "p explains q, r and s", and the peculiar modality of p which it demands, since p is one of the necessary truths of science. Descartes, it will be remembered, dismisses contemptuously syllogism and "merely probable" arguments from investigatory science).

It is plausible enough to claim that the virtues or powers of gross bodies are a function of, or depend upon, their micro-structure, but this determination of structure in seeking explanation is a macroscopic procedure, and is in fact the basis of Descartes' physiology. It is a familiar consequence of an interest in the source of powers, capacities,

potentialities, dispositions and activities of any gross phenomena. Of any gross body it may be asked "How or why does it so react?", and the answer may well be in terms of a complex of lesser bodies in systematic relation. No matter how far we go by empirical investigation, we will still be concerned with bodies which are gross in the sense that particle-structures will still evade us. If we are content to accept as explanation of the behaviour or capacities of two different gross bodies A and B that they are constituted of particles of different shapes in different patterns, the only argument being that the patterns must be different or the behaviours would be the same, we have necessity and nonsense combined with a complete barrier to discovery. (And the same charge rests against any attempt to claim that bodies must be the same, and if their behaviours differ there must be different minds "animating" the bodies).

The doctrine of powers and virtues is not a barrier to science, to the raising and settling of further problems, unless powers and virtues are reified and converted into "simples" which are exhaustively known, i.e. which need no further investigation. In the case of the corrosion above, we should still have to search for the thing responsible for the corrosion, and then to discover its structure before we had an explanation of why it caused the corrosion. We must locate the thing which (grossly) causes the corrosion before it is even intelligible to ask "How?", even if we have to find a substance for them.

reject "This caused corrosion" as an explanation. Deny the reification of powers, deny the reification, as principles, of acts or behaviours or operations of a thing, and we are left with the thing and its acts etc.; and if we deny the thing, as the reification of powers and virtues denies it, to be more than a location or a sign of location of the reified "entity", we are left with nothing at all except at best "there is corrosion" or "corrosion occurs", neither statement being meaningful unless we accept it that something corrodes, that some substance undergoes change. ¹

3. As the instance was first presented, "There is a corroding substance present" was equivalent to a question or an hypothesis, answered or confirmed by the discovery of a thing present, a thing which could not be exhaustively described by "a corrosive substance", and still less by "a substance". What is meant by something being exhaustively described by a single predicate we can investigate later; what I want to

1. The reification of powers entails the denial that x acts and the assertion that there is in x a power that acts - potentia tends to become vis, located, simple, indivisible. This, since it seems patently close to Descartes' treatment of mind, needs lengthy consideration, but it is worth noting immediately that the scholastic doctrine of Faculties (of Mind) went hand in hand with a denial that Mind was a "complete substance" - the complete substance-thing was man. In this they seem to follow the Aristotelian, not the Platonic-Socratic tradition. I shall stress below Aristotle's statement that "it is doubtless better to avoid saying that the soul pities or learns or thinks, and rather to say that it is the man who does this with his soul" (De Anima, 1.4). This is precisely not reifying powers, but relating "men think" and "men have the power to think". It is Descartes who reifies powers and then has to find a substance for them.

draw attention to is the impossibility of answering any question like "How is the corroding substance related to the room?", (or to particles, or to bodies, or to anything else), if all we can assert is that there is a corrosive substance, with one proviso, namely that we can always say that it is related to the knives by "corroding". Yet the proviso, for all its necessity, is empty: it repeats as an assertion the original question. "What corroded the knives?" becomes "What corroded the knives corroded the knives". Equally empty is the assertion that unless it were a corrosive substance it would not have corroded the knives. The criticism applies to all doctrines of powers and virtues if powers and virtues are treated as things within things. It may be the caffeine in the coffee which keeps us awake; it may be the kitten in the basket which causes it to move; but until we have discovered the caffeine and the kitten we have only sleep-preventing coffee and a moving basket, coffee capable of keeping us awake and a basket capable of moving. The "powers" are not in them in any sense of "in" - and we preserve a "metaphoric" use at the expense of incessant confusion.

One of our major problems is to discover the relation between the sort of situation illustrated by corrosion, the account of which (apart from certain reservations, and going beyond the limits I suggest) Descartes would maintain, and the situation of "thinking substance". Accept "men think" as a fact and as setting a problem in the form "thinking has occurred -

who thought?" and we have either a ready answer or a problem of detection. Ask "What thought? What thinks" and we can answer "A man; this man; not non-human animals; not plants; not inanimate, non-living things". Ask "How?" because we cannot understand how any animal does or can think, just as we can ask "How?" when we recognise that acid does corrode metal without knowing how it does so, just as we can ask "How?" when we have discovered that oxygen is a gas and knives are made of iron and the oxygen combines with the iron - and in what sense have we given an answer when we say "It is a thinking substance which thinks"? (And to repeat a point, relevant because "thinking substance" is contrasted by Descartes with "extended substance", "knives are extended substances" explains nothing about corrosion, and until we have discovered the thing which corrodes we have no ground for saying corrosive substances are extended or not extended).

Even granted that we have "inside" knowledge of thinking as we do not have it of corrosion, that we would never mistake thinking for corroding, that thinking is the activity most familiar to us, what is the meaning of the statement that there is no problem of how thinking substances think because it is their nature to do so? Or that they think always, because it is their nature to think, and there is no reason (no principle to explain) why they should ever cease to think?

(Adding that, unless God interferes to destroy them or ceases to maintain them in his eternally rational but incomprehensible fashion, it is logically impossible for them ever to be not thinking, is either mere repetition or, like Descartes' law of motion that what moves goes on moving unless it is interfered with, a principle which runs sheerly counter to his metaphysics of atomic time sequences of instants. God's recreation instant by instant of the universe leads us on to the argument, apparent in the letter to More of Aug. 30, 1649, that God does everything that happens in the world.¹ These, however, are the higher flights in which lesser level contradictions become vacuously apparent, and it is lower levels that concern us here).

The Cartesian argument in the exact form indicated above, can be traced out in the Meditations and in the Replies. Since it is to be discussed immediately below, I shall do no more than note (a) that Hobbes makes the objection which is relevant, that the question unanswered by "thinking substance" is "What thinks?"; (b) that Descartes professes, in the reply to Hobbes and elsewhere that all he has tried to show before Meditation VI

1. Kemp Smith notes (New Studies, p. 201) that Descartes, in his doctrine of motion, is afraid of being taken to imply that God is the anima mundi, as the letter of More reveals. But the argument holds of minds as well as of bodies if minds and bodies are univocally substances. If God is the Sole Mover, God is the Sole Mover, a Moving Substance that lacks a principle of non-Movement and leaves no room for other movers, pensive or locomotive.

is that there is a thinking substance-thing, and he has made no statement at all about what sort of thing it is; and (c) that Descartes asserts in the reply to Objections I that "according to the laws of true logic the question "does a thing exist?" must never be asked unless we know what the thing is".¹ To this we can surely add: "the question of what a thing does cannot be asked unless we know what the thing is". We can understand the situation: "There is something going on here which is impossible to explain as an activity of what I know to be present, so there must be something present which I have not yet discovered". Yet the solution to that necessary question is an empirical one, and if the process or activity is "thinking", what seems plausible to argue is that until we have found what does the thinking, what sort of thing is the mind or thinking substance inferred from the occurrence of thinking, it is meaningless to ask how the mind or thinking substance is related to anything at all.

4. I suggest, quite seriously, that this is the general philosophical situation, and that the desperate search for an answer to "What relation is there between minds and bodies?" is in part a desperate search for a relation which will enable some meaning to be given to "mind", i.e. will enable us to understand what minds are, or what "mind" means.

1. H and R.11. p.13.

I am not concerned to argue that what is true of corrosion is true of thinking, or that one must be discussed in exactly the same way as the other. But it seems fairly clear that in considering the philosophy of substance we must give special attention to (iv) above, i.e. to the way in which philosophers argue to their substances, by modes of argument which seem to have the same logical character as do our familiar arguments, although the conclusions seem to be very different from our ordinary conclusions. If the logic is the same in an argument from "corrosion occurs" as in an argument from "thinking occurs" we need at least something additional to establish that the conclusions are radically different from one another. If, as I added further, philosophers' statements and arguments about substances are meaningless unless they are related to familiar occurrences, and if our arguments to particular and different substances hold (in the case of any situation in which change is caused or an act is observed), while of any answer we give as the substance in question the philosopher can still ask in his sense "What substance is it?", then what seems indicated is that philosophically all differences between familiar things or observable occurrences are irrelevant to the question of what substance. That means that the philosophical arguments are different from our familiar arguments, and this is borne out by the quite general claim that Substance as such is never observable, and that if any thing or substance is familiar and observable, if it can be encountered in its differences from,

and its similarities to, other things or substances, it is not Substance at all. Yet somehow we must be encountering Substance all the time. No thing, no substance, is a better example of Substance than is any other; no thing and no substance is more adequately explained by Substance than is any other.

We cannot simply amalgamate the various claims that there is one Substance, or that there are two Substances, or a greater number than two Substances in the world, nor claim that there is really only one argument involved. That is one reason why I choose the long and detailed road in a consideration of Descartes. The arguments employed by metaphysicians are different from our ordinary arguments, and one of the points of formalising a logic - a procedure which Descartes, like the British empiricists, deplures - is that it enables us to detect such differences. Scientific arguments, too, are different from our ordinary arguments, like and unlike the metaphysical. Part of our quest is for an elucidation of such differences, and I have already suggested a parallel between our ordinary arguments which move from occurrence to necessary question and the metaphysical argument which moves from occurrence to necessary answer.

If we can elucidate the differences, we may be able to see why Descartes refuses the argument: Socrates thinks, Socrates is an animal, therefore some animals think. We may be able to see why he does seem to argue: I think, I have a mind, I have a body; minds are necessarily not bodies, therefore

I am a mind. Our chief concern is here with "thinking substance", with mind as "that which thinks" (though I shall argue that no account of mind evades "substance" and its logical problems, and that we have to consider other matters than "thinking substance" to discover what substance-talk is about). There is no need to be misled by the simple formulation - Descartes himself expands "that which thinks" in a variety of ways; into that which is aware, into that which feels and acts and suffers in diverse fashions, and I shall try to show that "thinking substance" appears in succinct arguments as (a) a synonym for the self, (b) a simple agent which acts, i.e. perceives "in the strict sense", (c) a container of ideas, (d) thought itself, as a self-generating process, (e) the substratum of "ideas" or modes of consciousness, and (f) as a simple substance which is somehow a spectator to the thoughts which occur before it.

Provided we recognise that part of the time at least Descartes' concern is, like mine, with the complexity of mental acts and states, processes and activities, which we regard as human, as acts, states etc. of a man, we can give a meaning to most of what he is saying directly. In other cases, we will need to note what truths he holds on the grounds of faith to be unquestionable in order to see why he argues as he does; and in other cases we will need to note what he is arguing against. But we are not restricted

in any way to the account of thinking as a process of manipulating symbols or "things" called ideas which tempts people to believe that calculating machines are prototypes of minds, even if such a thesis is a simplified form of one of Descartes' central theses. We can, as I shall show, get an account in Descartes' writings of man as a very complicated machine, able to speak, whose intricate inner mechanisms make thinking as we know it and communicate it possible. But Descartes adds as well that the man, in an obvious sense of "knows", knows what he is talking about.

Descartes shows no inclination to reduce accounts of mental activity to physics; his gross error was to suppose that the account of everything except thinking was reducible to physics.

.....

As a further guide to a discussion of the complexity of Descartes, let me elaborate forms of argument which are used by him throughout his writings. Two have been mentioned above.

1. The argument from "corrodes" to "a corroding substance corrodes", from "thinking" to "a thinking substance thinks", are both "obvious" if we know that "corrodes" and "thinking" are acts, and the "eternal truth" is "every act has an agent". But unless we are going to rest happy with saying "acts occur and there is one agent for all acts", or "acts occur and an

unknown agent or a number of identical unknown agents are individually responsible for such acts", we have to recognise that agents are different in kind as acts are different in kind.

In fact we make many act-statements which have recognisable subjects: cats mew, acids burn, beetles buzz, tea revives .. and we could give no meaning to act-verbs, no use to act-verbs, unless this were so. Our mode of inference is not in fact "mewing - act - agent - cat", but if it were such, we should have to go on to the fourth term before we had reached a conclusion.

Descartes rejects the syllogistic: "This mews, only cats mew, this is a cat". (The Regulae suggest that this is to be rejected because unless we knew directly that cats mew, we could not formulate the major, which already contains the conclusion, which follows directly from "this mews", and there is thus no need for majors at all). What he seems to substitute, in the name of "immediacy", is: "Mewing, therefore mewing substance, and "cat" is the name for a mewing substance". Compare "thinking, therefore a thinking substance, and "mind" is the name for a thinking substance", which Descartes insists to Hobbes is the argument in the first Meditations.

The difficulties of this peculiar nominalism will be considered later; but instead of syllogism, which gives the form of propositional arguments, Descartes is concerned with (free particular synthetic statements to other particular synthetic statements).

the argument which establishes any singular proposition.

His problem is related to Aristotle's treatment of metaphysics and categories, not Aristotle's logic (and I shall evidence below that Arnauld seems to recognise that the Categories - in a most inexact form - constitute Descartes' metaphysics). Hence his claim that substances are inferred from attributes. The primary "truth" of which no minds can be unaware, or which reveals its unconscious presence by the fact that we do utter propositions and use nouns as subjects (i.e. facts prove the existence of the "truths" in our minds) is "every attribute is of a subject".

This first principle" can be stated as "if Y is an attribute, there is a Y-thing which is Y". Of this, "if Y is an act, there is a Y-ing-agent which does Y" is a form or mode, and there is a multitude of varieties - in fact every case where our terms for an agent and for an act are correlative is a variant. If conducting, there is a conductor; if drinking there is a drinker. Mathematicians do mathematics; smokers smoke; scientists do science, philosophers philosophise, explanations explain. In each case the "necessity" depends upon the noun (philosophers) being equivalent to acting-thing (what philosophises).

(And let us not be blind to the fact that many scientists and philosophers, albeit in different terms, maintain this as the basis of scientific laws and definitions, and of arguments from particular synthetic statements to other particular synthetic statements).

What Descartes wants to argue is that "thinking occurs therefore thinking substances" and "extension occurs therefore extended substances" are the two primary truths consequent upon "every attribute is of a substance", and hence that the only names we need are "mind" and "body". But if this is so, then any soul can be in any body, in the sense that a soul must be somewhere, and being somewhere is being in a body-world and, (if souls are unextended), being within the contours of a particle.

Thus he would seem bound to argue (a) that all familiar statements can be reduced to statements about minds or statements about bodies, although the only statement that can be made about minds is that they are thinking substances ("mind" is a name for "thinking substances" - "minds think" is a verbose repetition, equivalent to "thinking substances think") and are somewhere, and of bodies that they are extended substances ("body" is the name of "extended substances") which are in movement (a further piece of information) and spatially related to other bodies.

Hence the tremendous importance of the proof of the intimate union of mind and body in the case of man, i.e. the proof that man is a thing, not merely a soul located in an extended contour. Being "embodied" is the condition of there being a science of this world - although Descartes also seems to believe that a disembodied soul could do all science, could give an account of all possible worlds, very

adequately and efficiently without the interference of the body which enables it to detect the actual as values of the possible.

The mode of argument now is: (a) men do feel when they see their bodies torn, (b) this would be impossible if minds were merely spectator-percipients, (c) bodies cannot (a priori) feel pain, (d) therefore minds feel pain, (e) therefore minds are not merely percipients but are pain-feeling substances pain-feelingly united to perceptible bodies.

What determines the "reality" of the cause, of the "union", is the experienced fact of sight of torn body and pain. This is not a substance-attribute argument, however, and Descartes has, in terms of substance-attribute, two "solutions". The first makes "seeing" a mode of thought, and rests with "thinking substance" contrasted with "extended substance"; in this connection there is little discussion of pain or of sensing, both of which are embarrassing. (I shall cite below Descartes' own admission that he does not mention this when he is proving that souls and bodies are distinct substances because it is embarrassing - harmful (nuisible) to the argument). The second makes pain-sensations, all sensations and sensing, and both appetites and emotions, attributes of man and not of the thinking substance, i.e. not modes of thought.

Thus there are three subjects, minds, bodies, and men, and three classes of statements. What I shall argue is

that while "minds think" is an impossible statement taken literally, and "bodies are extended" is an impossible statement taken literally, "there are minds" - as "there are thinking substances" - is readily made equivalent to "men do think", and "there are bodies" - as "there are extended substances" - is readily made equivalent to "chairs and mountains and birds are extended".

Thus "Y is a predicate entails there is a subject X" enables us, noting Y, to find what value of X is concerned provided we know what sort of thing to look for or how to look for it; and until we have found what value of X is concerned we have only a question. The factually encountered intimate-union, man, who is thinking thing and extended thing, is the basis of any further argument that there are things of which man is the union.

2. On p. 36 I maintained that a central argument in the Method was of the form: q, r and s are true; p explains q, r and s; therefore p. In the case of physics (qua explanatory of freezing and tides and magnetism) what we find are necessarily true statement about particles (perhaps true of all possible worlds) and a further statement that the gross phenomena are explained by the particle statements (together with modifying statements about shape and particular motions and complexity). It is scarcely enough to say that they explain because they were designed to explain - and I

suggested that this was indicated by the peculiar consequences when conceptual or "as if" statements cease to be such and become fact-statements. It is all very well to say "fruit juice "bites" the tongue" is explained by "fruit juice consists of little sharp splintery particles which penetrate the membranes of the tongue"; it may be useful to treat juices this way if we are only concerned with tongue-biting. But when we say that "fruit juice consists of etc." is a fact statement, we have to consider other facts about fruit juices. The "physical" hypothesis may indeed make nonsense of botany and chemistry if it is a fact statement. "The soul is a thinking substance" is perhaps a useful thesis for someone concerned only with studying what is thought as thinking; it may make nonsense of biology and other sciences if it is a fact-statement. Consequent problems are, I contend, philosophical problems of the methods and relations of sciences.

In a genuine sense of "explain", that extends beyond "it is convenient for this science to treat things as if", the explanatory propositions must be true, and must be occurrences, and this can be established only, if they are not observable, by a necessary connection between facts (q, r and s) and the (independently) necessary explanation (p).

Descartes cannot rest as a philosopher with "p explains q, r and s, so that p is a possible explanation, and there are or may be many such possible explanations". Whether

non-philosophers can do so is a question - conceptualists certainly claim that all explanations are merely explanatory, but unless there are some criteria there is no limit to the number of sciences or explanations of any event. What Descartes wants to show is that p is the explanation, and this means establishing p as true as well as necessarily true, i.e., as more than "a relation of ideas"; while its truth can only be established from the truth of q, r and s. For Descartes, p must be a possible fact to be a possible explanation; but it must also be an actual fact to be an actual explanation.

Indeed, the metaphysical problem seems to be, for him, to establish the "reality" as well as the necessary truth of first principles - such is the express aim of the method of Doubt, and the rejection of rational science as actually self-justifying. The quest for certainty is not a search for "necessary truth", since he has a multitude of necessary truths as analytic statements, but for a necessary fact, a necessary truth with an existential entailment. What he wants, like and unlike Spinoza, is a system of mutually entailing "truths", and the test of a system is both coherence (which any abstract system can have) and fact-truth; p and q and r and s belong together; q, r and s are fact-truths and entailment establishes p as fact.

(The Principles are indeed a conglomerate of distinct truths, a confusion of metaphysical, scientific and fact-

statements, and it is easy to get the impression that the only test for inclusion of another principle is compatibility or non-contradiction. But Descartes insists that they are all related, should be read "as a whole" and re-read, until they are all assimilated and related; his major contention seems to be that metaphysical, scientific and "experimental" truths are all true in the same sense, and one of the tests of the Principles would be their relation to each other through the unquestioned fact-system which is the world - they "explain" the complexity of What Is and they develop into the totality of What Is).

For a specific statement that the argument from q, r, s to the reality of p is fundamental to the system, consider Part VI of the Discourse, where Descartes explains his use of "hypotheses" in the Dioptrics and the Meteors (the important essays to which the Discourse is, for Descartes, a casual introduction).

"....for it seems to me that the reasonings are so mutually connected in these treatises, that, as the last are demonstrated by the first which are their causes, the first are in their turn demonstrated by the last which are their effects. Nor must it be imagined that I here commit the fallacy which the logicians call a circle: for since experience renders the majority of these effects most certain, the causes from which I deduce them do not serve so much to establish their reality as to explain their existence; but on the contrary, the reality of the causes is established by the reality of the effects."

Descartes adds that he calls "the matters" in question hypotheses because he thinks he can deduce them from his first principles as already "discovered" - the deduction

he will not demonstrate because others may build an extravagant philosophy on his principles and he may be blamed for it. Others think they can master in a day "all that another has taken twenty years to think out, as soon as he has spoken two or three words to them on the subject". Maybe we do not know the "secret deduction", but whatever it is, what breaks the circle is "q, r and s are experienced facts", and the modality (p is possible) is clearly all that can be established if the argument is only "if p, then q,r,s" and "q,r,s".

3. What is the case when a principle explains all possible worlds of which the actual is one is a question that need not concern us directly. But it is important to note that the Regulae had not been published when the Discourse saw the light of day, and the analytic doctrine of the Regulae is quite different. Any thought, fact-claim or otherwise, can be analysed, it is claimed, into component simple notions with necessary relations. Once the analysis has been carried out, inspection is sufficient to show whether the thought is true or false (in fact whether it is a real or possible thought, or not really a thought). A thought q can be analysed into a,b,c,d and e.... which are necessarily true, but since q is a necessary synthesis of a,b,c,d and e then we can argue "a,b,c,d,e together are necessarily true, so p is necessarily true because p is equivalent to abcde".

No examples of this are given, and I suspect none can be given except by a special interpretation of mathematical systems; but if we begin with the unanalysable elements and their necessary relations it seems evident that we can explain or even describe by constitution all possible worlds, and yet for any such system-development to be science we must be able to discover by other means that propositions like p are both true and true of this world. Hence we revert in part to the earlier problem, that p is fact depends upon sensory observation, upon direct experience.

Our difficulties are not resolved when we have to try and relate the doctrine of perception with its account of the occasioning of ideas in us by "unknown" things, and the repeated claim that it is "our habitual use of the senses which has rendered the notions of extension, of shapes and movements, more familiar to us than our other notions". The specific quotation is from a letter to Elizabeth; but in the VIth part of the Discourse we find:

"I remarked, moreover, with respect to experiments, that they become always more necessary the more one is advanced in knowledge; for, at the commencement, it is better to make use only of what is spontaneously presented to our senses, and of which we cannot remain ignorant, provided we bestow on it any reflection, however slight..."

This suggests that what we are to analyse is what we are confronted with, the complex ideas occasioned in us in such a way that they represent veridically a complex world, i.e. "having ideas" is having something of the world "in mind".

If this is so, then Descartes' conviction was that metaphysical, scientific and fact-truths were true in one sense of one world, and it parallels my conviction that Descartes the metaphysician, Descartes the scientist, Descartes who wandered pensively in fields and grew monstrously angry with Voet, Descartes who was born and died, was the one individual man. But was it his conviction?

Chapter 111.

The Complexity of Descartes.

Four uses of "substance" have been indicated - as "thing" in ordinary use, as "substrate", as "stuff of some things" and as "stuff of all things". These are related to use of the term by scientists to indicate things which are to be treated as uniform qua stuff for their particular science.

The substrate view points to the question of knowledge of substances and attributes, both in the case of "what knows" and "what is known". This is our first main concern. It is inseparable from the notion of "principles".

2. Descartes is treated too simply. It is overlooked that he was concerned with a science of man. Without a concern for, and acceptance of, man, dualism appears as conceptual and as not presenting either problems of contradictions. If we consider Descartes' arguments seriously we are confronted with the problem of the role of principles.

a. Can they be argued to? If so, they are dependent upon their premises, and ultimately on fact statements.

b. Are they true in the sense that fact statements are true? Descartes is inconsistent.

c. Principles function as explanatory in science - but what is the force of "explain"? Conceptual statements and factual statements, and statements of the relations between these, form three classes of statements.

(p.73) The role of observers and observation statements: it is man who fulfils the requirements of an observer. Descartes' confused uses of "I" and "We" suggest that it is Home Cogitat after all.

(p.76). (I) The Cogito considered in relation to "We are men". It begins thus and is actually continued thus. The reduction is of species of act to generic act, and this permits the expansion in reverse. Descartes' has to conclude with "man" as the subject of "thinks".

The mind-argument is like and unlike the body-argument.

(II) "Man does science" as a first principle. Its relation to conceptual and factual science. The results of writing "soul" for "man" by Descartes discussed.

(III) a. "Explanatory models" of one science must be related to other sciences and to facts unless we are prepared to say "model only". "Explanatory particles" do not lead on to a world of bodies or of minds; and the question is how there can possibly be a familiar world and observers of it on the thesis.

Descartes has at least a two-fold thesis with regard to the familiar world.

b. His use of "I" and "we" in argument to and in metaphysics must be related to the expansion of the Cogito: the "modes" are not deduced, and the expansion is through uses of "I", not uses of "thinking thing". "I" is assumed to be the persisting subject of a whole set of acts, and acts ordinarily and justifiably treated as different (sensing, imagining, dreaming) are treated as identical.

Yet even here Descartes shows no consistency, and his two main lines of argument conclude with "men" - bodily agents who love and observe. Again, it is man who makes dualism a problem. We turn to this in detail.

For Spinozism: "When we conceive substance, we conceive only a thing which exists in such a way that it has need only of itself in order to exist" - a definition which strictly applies only to God, without whom nothing could exist, but in a relative sense no created thing has need of any other created thing in order to exist.

Elsewhere substance is given as the productive principle of modes as well as their support - "the internal principle from which modes arise and in which they reside" (Notes on *Principles*). Several texts have the air of identifying substance with the assemblage of attributes - "the attributes taken in their totality are simply one with the substance" or with the principal attribute - "we can consider thought and extension as the principal things which constitute the nature of intelligent and corporeal substance, and then we should not conceive them as other than the very substances which think and are extended" - while other texts reject any confusion of an attribute, whatever it may be, with substance - "beside the attribute which specifies the substance, we must yet conceive the substance itself which is its support".

A summary of Laporte, *Op.Cit.* pp.179-181.

"Next, he quite correctly says, that we cannot conceive any activity apart from its subject, e.g. thought apart from that which thinks, since that which thinks is not nothing, but wholly without any reason, and in opposition to the ordinary use of language and good Logic, he adds "hence it seems to follow that that which thinks is something corporeal"; for the subjects of all activities are indeed understood as falling within the sphere of substance (or even, if you like as being the cause of matter, viz. metaphysical matter), but not on that account are they to be defined as bodies.

On the other hand both logicians and as a rule all men are wont to say that substances are of two kinds, spiritual and corporeal".

Descartes, *Reply to Hobbes*. (H and R.II.p.63).

"Pour Descartes, au contraire, la substance est avant tout ou plutôt uniquement le concret."

A vrai dire les textes, sur ce point, semblent d'abord peu concordants."

Laporte. Le Rationalisme de Descartes. p.179

Sometimes the texts reproduce the scholastic notion of substance as the subject of inherence; sometimes they present the very definition that will serve as a foundation for Spinozism: "When we conceive substance, we conceive only a thing which exists in such a way that it has need only of itself in order to exist" - a definition which strictly applies only to God, without whom nothing could exist, but in a relative sense no created thing has need of any other created thing in order to exist.

Elsewhere substance is given as the productive principle of modes as well as their support - "the internal principle from which modes arise and in which they reside" (Notae in Programma). Several texts have the air of identifying substance with the assemblage of attributes - "the attributes taken in their totality are simply one with the substance" - or with the principal attribute - "we can consider thought and extension as the principal things which constitute the nature of intelligent and corporeal substance, and then we should not conceive them as other than the very substances which think and are extended" - while other texts reject any confusion of an attribute, whatever it may be, with substance - "beside the attribute which specifies the substance, we must yet conceive the substance itself which is its support".

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Descartes. Reply to Hobbes. (H and R.II.p.63).

Chapter III.

The Complexity of Descartes.

A summary of Laporte, Ch. III, pp. 179-181.

"Next, we shall correctly say, that we cannot conceive any activity apart from its subject, e.g. thought apart from that which thinks, since that which thinks is not nothing, but wholly without any reason, and in opposition to the ordinary use of language and good logic, he who 'thinks' seems to follow that that which thinks is something corporeal; for the subjects of all activities are indeed understood as falling within the sphere of substance (or even, if you like as wearing the guise of matter, viz. metaphysical matter), but not on that account are they to be defined as bodies.

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The Complexity of Descartes.

I have suggested, very sketchily, that "substance" is used (a) as equivalent to "thing" in ordinary usage; (b) as a sub-stratum - roughly equivalent to "thing" contrasted with attributes in the case of a statement that a common noun (snowball) can be said to name a thing which is round and white and cold, the function of "thing" being to support or to hold together the attributes "round, white, cold"; (c) as a particular stuff of which a number of particular things can be shown to be made; and (d) as a stuff of which all things are made. Some elaboration will be necessary later, but these senses are fairly clear and fairly primary; Descartes uses the term "substance" in each of the senses above.

In the case of (a), "thing" is a class term or variable, whose members or values are an indefinite number of different things, lions and lambs, teapots and tables; and as "what things are made of" substance is likewise a class term or variable, whose members or values are glue and sand, toffee or air, any of which may be constituted of substances, any of which admits of empirical analysis. In either case, a disjunctive explanation of "thing" or "substance" can be given, i.e. they can be explained by indicating or referring to this and that and the other.

1. The extension of this statement to grammar, logic, arithmetic, psychology and other sciences is to be considered below. The key word is "things"; the key problem "what is the connection between classes of things, kinds of thing, in the different sciences?"

I want to stress this, since I claim that there is a ready tendency on the part of scientists to delimit their field of investigation, especially when formalising their science, as an introduction to students or as a means of readily distinguishing one field from another science's field, by reference to a "substance". The traditional physicists' "study of the physical properties of matter", the biologists' extension from the study of the features and the behaviour of organisms to the study of "living tissue" or "protoplasm", parallel one another here. In each case the second introductory stage is disjunctive indication. The "simple substance" suggested by the introductory and definitive sentences is a class term; the simplicity is quite compatible with the indicated members being complex and subject to analysis by other sciences or by a development of the same science.

If this is the case, then we may expect it to be true of any science that it will define its field or be able to define its field by an assertion "there are such and such things which can be studied, and so far as this science is concerned those things are simples - we are not interested in their analysis, but in their description and in their behaviour".¹ If physics, as Descartes maintained, is

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concerned with extended things which move, then it is concerned with any things which are extended and move, is not concerned with any thing which is not extended (whether it moves or not), and it is totally irrelevant to physics what another science may have to say about the constitution of things which are extended and move. The physicist can guarantee that no other science will be able to explain the constitution of his simples by declaring them to be "conceptual"; he then knows all there is to know about them. But if the concepts have to be re-established as "things", we revert to empirical science and empirical problems.

What gives the meaning to the talk of concepts and simples is at least initially the possibility of disjunctive indication of distinguishable and recognisable things; and when we claim that certain classes of things can be analysed and discovered to be constituted of the same substance or substances, we are asserting the truth of a general proposition that any such thing will be made of something, and this is very close to what is asserted in (c), namely the use of "substance" as a particular stuff of which certain things are in fact made.

Both (b) and (d) are different from (a) and (c), and produce (historically) what seem entirely different questions. If instead of "a rose" we write "a thing which^{is} such and so", where "such and so" is a string of attribute-terms, and are

asked what "thing" means, we can proffer a description "such and so". If this is rejected as an explanation ("rose" is explained by "thing such and so", and what is requested is a sentence which in the same way explains "thing") we can give no explanation; and our statement that we have never met things not featured, never met things which were not roses or radishes (which reverts to (a)) leaves us with "thing" as a class term, not as an individual noun. Those who maintain "thing" to be such a noun must, and do, declare that "thing" is (and so "things" as instances of "thing" are) unknowable, cannot be sensed or encountered in any way.

The attributes ("such and so") are held to be sensed and encountered; they provide the basis for discourse in which "things" is a class term or variable. But the move from collection of attributes to thing-with-attributes (a rose) depends upon the introduction of "thing" as a substance which supports attributes; or, by an analytic demonstration, the idea of "a rose", which is indubitably an idea we have, is made up of the ideas of "such and so" and the idea of a "thing" which is such and so, and without the idea of "thing" there could not be the idea of "a rose". It is logically impossible for attributes, on this argument, to be without such a substance, and it is "physically" impossible for us to be aware of such a substance.

"Thing" is, we may say on this view, "inferred" from the attributes encountered. If this is so, then all instances

of "thing" are identical; it is meaningless to say that a "thing" is different from another "thing". "Thing" is substantially identical in, is the substantial identity of, all our variously named different and similar things. And this is like (d), where it is argued that there must be a substance which is identical in all things, but which cannot itself be encountered or "known", although in a sense we are encountering it all the time. What we encounter is a "form" or "mode" of it. Whenever we encounter a thing as in (a) we encounter a form of the substance identical in all things which can be disjunctively indicated; but the substance, while necessarily inferrable, is not to be encountered as distinct from the form. This is difficult to distinguish from "whenever we encounter a thing as in (a) we note or are aware of the features or attributes, and there is a necessarily inferrable substance-"thing" which is not and cannot be encountered independently of the features or attributes. We may add, however, that "inferrable" indicates in no sense the arrival at a mental "entity"; the substance or thing is where the mode or form or attributes are. If they are at place p at time t, while the encounterer is near p at time t, the substance-thing is at place p at time t.

For the first section below, the important sense of "substance" is that of "thing", with the consequent argument that if there is at any time or place an attribute - and

this includes a quality, an act, a state, in fact any term predicable of a thing - there must be a substance present. I remark, to give point to what has been asserted above, that in Locke the argument reaches a different conclusion to the one indicated. Locke concludes with the substance-thing in place p at time t, and with the attributes in the encounterer who is near p at time t. Certainly he wants to leave some of the attributes attaching to the thing at p, the primary qualities, but he is in fact unable to do so. Further, he seems to have to maintain that the attributes are somehow in the encounterer wherever he is at any time. His non-mental substance is an unknowable somewhat always somewhere, somewhen, and apart from this existence claim all that can be said of it is that it has the power to affect a mind in a certain way. "Mind", however, seems to be a substance in much better case, since it can be known by itself. In Locke, it might be held, this is doubtful; "we" know the minds operations, and the operations are the attributes from which "we" infer the mind which supports them. In fact, it is "we" who have difficulty in grasping the ungraspable but necessary "substances", and in grasping why the metaphysical foundation should have been regarded as the foundation of "Empiricism" in revolt against rationalist metaphysics. What will concern "us" below and at length is the status of the "we" in relation to the unknown substances, one capable of having ideas, the other and thought, is here indicated.

capable of arousing ideas in the other, exclusive substances both of which "we" know all about, and whose attributes "we" seem to possess in that we seem capable both of being aware and of causing each other to be aware.

In keeping with what was said above about sciences and their simple substances, it might be noted that a science of thought could readily assume that there were thinking things whose "thinkings" (qua behaviours) could be studied, things which were simple in so far as the science in question was concerned. As long as the things existed and thought, and the "thoughts" were available for consideration, it would not in fact be important if the thinking things were mice or men, atoms or globules, flames or spirits. A physics concerned with extension and movement would be interested in mice and men qua extended and moving, and uninterested in what other features they had, whether they thought or felt or were organisms or were solid right through. It is when the science of "thought"¹ and the science of extension and movement shake hands over the dessicated corpse of the familiar world, and agree that there are as things in the world only their simples, thinking things which have no other features, extended things which have no other features, that metaphysics has to be called in.

1. And a central problem, the relation between "thinking" and thought, is here indicated.

2. Descartes, as the world knows, gave a simple account of mind and of body. His statements are clear, his facts obvious, his arguments precisely propounded. In fact he set the standard of clarity and simplicity and of modern science in the middle of the camp of scholastic verbiage, logic chopping and philosophical quibbling. The problem he leaves us with is that of discovering the relation between mind and body, which he proved to be distinct substances. Mind is a substance which thinks and is not extended, body is a substance which is extended and which does not, could not, think. This is obviously so, necessarily so, and in fact so.

If we begin by showing the world to be wrong on the side of simplicity in so appreciating Descartes, we may also recognise that the previous paragraph is not an adequate account of Descartes, fails completely to indicate either the problems which Descartes recognised or his intricate manner of disregarding them and his metaphysics when he turned to science and to inquiry, and fails to indicate that if such an account did cover the Cartesian achievement there would be no Cartesian problem of dualism.

It is the last point which leads on directly to what is seldom apparent in volumes about Descartes, that he was concerned with a science of man, and that his metaphysics is designed to provide necessary truths which (except for the existence of God) are important only as the foundation

have, what Descartes meant or thought that he meant by "deduction from principles", and what the process of arriving at principles amounts to in a variety of contexts.

While the perspective concerns us, we are not so much concerned with what Descartes says of principles - he says in fact little, and we have to search until we find, say, a letter to Clerselier in 1646 to find a definite and not very informative statement¹ - but with what Descartes does with principles.

(a) Can principles be argued to? Descartes seems clearly at times to believe that they can; but if so, we establish principles by argument from other truths, which seem to be factual as distinct from rational truths. And if this

1. In the letter Descartes distinguishes looking for common notions so clear and general that they can serve as principles in proving the existence of "all the things (entities, Etres) which can be subsequently known", and looking for a thing (un Etre) whose existence can be so much better known to us it can serve as a principle for knowing other things.

What is involved is (a) no existential proposition can be proven without an existential premise, and (b) nothing could be more manifest to us than "that our souls exist". But if all other existential propositions are "reducible to" or "provable by" the first principle, then other propositions are somehow contingent, and the others include both "God exists" and "creaturely existents exist". Descartes is content to demand that a principle should "come first", i.e. not depend upon another truth, and "serve in the finding of other principles"; but he adds "there may be in the world no single principle to which all things can be reduced".

All metaphysical roads in Descartes lead to the Cogito, and the central argument seems to be: I can be aware of nothing unless I exist, and unless I exist I can be aware of nothing; I can be aware of nothing existing unless I exist, and unless I exist I can be aware of nothing existing. But if the principle "our souls exist" is known to us, we get:

is so, then fact-truths and implications or logical principles enable us to deduce principles, but from the principles nothing can be deduced in the same sense of deduce. The Physics and what we might call the Psychology would then parallel one another in this, that in either if q implies p , p implies only that q may be true, unless p and q are equivalent. If q is factual, a principle p "depends" on q ; and if p is non-factual, it is not easy to see how it can be meaningful independently of q ; while if p is conceptual, and its terms cannot be terms in a fact statement, our difficulty is to show how p is related to q , and how in any sense we can infer q from p . And suddenly we realise that the Physics and the Psychology are utterly distinct.

The Cogito appears to be argued to from facts, to be arrived at by consideration of facts; the particle physics is conceptual, and possible facts are held to follow from it - though exactly how they do neither Descartes nor his

we could not be aware that our souls existed unless we existed, and unless we existed we could not be aware that our souls existed. "We" and "our souls" fall apart here, and this provided a central riddle. It is as difficult to find an answer to "Who do metaphysics, we or minds?" in the case of Descartes or Cartesians as it is to find an answer to "Who do metaphysics, phenomenal or noumenal selves?" in the case of Kant and Kantians. The traditional procedure is, I claim, to talk as if men do in order to prove that men do not. The traditional double-shuffle is the conversion of "Ego" into "the Ego" or "my Ego".

enthusiasts ever enlighten us. And somehow the particle physics is held to follow from the metaphysical certainty of "I exist as a thinking thing", since even if we insist on "follow after in order of philosophising" there must be some reason or basis for the order.

Yet the Psychology and the Physics are alike in that there are "real" terms in the principles - the thinking substance thinks as we do, the particles are extended and limited and related in the way that physical objects are extended and limited and related. Both, indeed, look like fact statements, which are true along with other fact statements, but in order for there to be science, fact systems must be asserted or re-asserted independently of the fact-seeming principles, and the fact-systems have, in general, been asserted by both those who had failed to recognise the principles and those who denied them. Everybody before Descartes had got the metaphysics and the physics wrong, perhaps, but they were wrong about the trunk and the roots, - the leaves and twigs of the tree of knowledge are common to all. Principles, not facts, seem to be disputable.

It is sheerly impossible, I suggest, to find a sense in which all the Principles are univocally principles; it is sheerly impossible to find any way in which the unextended mind "established" by argument in the Meditations - and then only in Meditation VI - could be familiar with the fact-truths employed in arguing to its existence or from its

unextendedness to a system of world-facts, at all.

(b) It is, if not impossible, at least as difficult to discover consistency in Descartes' arguments and general logic as it is to find any discussion of his logic in the writings of those who stress his great contributions to that science. If we take seriously the doctrine stated in Regula XII and re-asserted clearly, as we shall see below, in the letters to Elizabeth, if we take seriously the criterion of clarity and distinctness as the criterion of truth, Descartes seems to be professing a doctrine of material implication. p is true; q is true; " $p.q$ " is true. All can be seen to be true, and can simply and only be seen to be true. Certainly this would explain to us why the many Principles are seemingly regarded as on the same logical level, but it serves not in the least to explain Descartes' admitted difficulties at the end of the Principles, which he was unable to complete or even to continue as he had intended to continue it, that what is to be explained (the facts of general experience) alone can establish the reality of the explanatory, meaningful and necessarily true propositions which are the ordered principles; nor does it explain the mixed variety of arguments of a non-material implicatory kind which he employs at various points even in the Principles. Sometimes "clarity and distinctness" seems to function so widely that

the criterion applies to all statements and all arguments; sometimes the application seems limited to "ideas", to purely conceptual systems. In the latter case, the "logic" seems to be plausible for geometry or for an elementary particle system; but the main point of the Cogito is to show that the thinking substance cannot be an idea, cannot be a concept - it exists, and is known necessarily to exist by itself if not by you and I (or by you and I, if not by itself). Doing metaphysics is utterly different from doing geometry or physics, just because geometrical figures and purely extended particles do not necessarily exist, and at least may not exist at all in the sense that souls exist. The soul cannot be just its own concept. And yet we are told on many occasions by Descartes that the mind-soul-thing which exists can only be conceived.

(c) If we take Descartes seriously as a philosopher we find ourselves neck-deep in problems which scarcely figure in the Cartesian literature at all; and in taking Descartes seriously we find ourselves recurring again and again to the same points and the same problems, aware that we are confronted with problems of vital importance for post-Cartesian philosophy and science and that we are unassisted by commentators who work elaborately upon special questions within a framework but ignore even the problems of inter-relation of questions which Descartes himself sometimes of a connection between p and q brings p into a fact system, which seems to scientists to demand an explanatory hypothesis.

recognised in setting out the framework. I have stressed the puzzle of "principles" in part because it confronts all philosophers who insist that there are propositions which are purely explanatory, which have a different logical status from that of propositions which are held to be explained or to need explanation; but when we have done something to find out what is involved generally in this, we find that we have hold of one thread only in a tangled skein.

What in general is assumed by scientists is that if q is a fact-statement or set of related fact-statements verifiable by accepted techniques, and p , which is not so verifiable, is said to explain q , we cannot accept both " p explains q " and " q explains p " - " p explains q " and " q explains p " cannot both be accepted if the sense of "explains" is the same, because we can get to p only through q . So, it is claimed, p is conceptual or hypothetical, reached by argument or deduction from q ; in " q therefore p " the "therefore" indicates logical necessity, and there may be even alternative p -theories which are equally justifiable from a particular q -system. But " p therefore q " is in different case. If p is meaningful independently of q , and true independently of q , it is not a logical but a factual connection between p and q that must be determined, and the established fact of a connection between p and q brings p into a fact system, which seems to scientists to demand an explanatory hypothesis.

The contrast between conceptual and factual provides a dualism of an uneasy kind, since concept-statements and fact statements have to be related, either directly or by the aid of statements which are neither of the one kind nor the other; and the difficulty of accounting for the third kind of statement produces on the one hand a scepticism of the senses which brings facts into the realm of the conceptual, or a scepticism of reason which finally, because facts seem to be "reasonable", makes even commonplace fact statements matters of high dubiety. Descartes seems to be attempting to hold all three positions at once.

(d) In most of his scientific work Descartes follows those scientists who assume that they can both observe, and conceive explanatory systems - and the problem here is purely that of relating conceptual and observational propositions which are stated in a language and intelligible within the specific science in question. Not even relativity physicists suggest that psychologists should be consulted to solve the problems of physics in observing, conceiving or relating. I mention relativity physics, because therein the observer is stressed, and apart from conveniences or inconveniences of measurement and calculation, such physics does not demand an observer who is in fact unextended. It is satisfied with men who can sense (though it would be difficult for any physicists to ignore special theories of sensing like those which Descartes offers initially as

"hypothetical" in the Regulae) and conceive, i.e. men who can do science. Successfully or unsuccessfully, the relativity thesis appears to suggest that a recognition of the physicist as a man serves to bring together theory and fact.

Men observe and conceive, and the relation between observations and conceptions is matter for logicians and scientists. p-systems are intelligible and justifiable in terms of q-systems. But as soon as the p-systems are applied to the whole observational situation, i.e. to "men observe q" instead of to "q is observed", the conclusion seems to follow that q could not be observed at all. What follows from this is not simply that, as Descartes claims in Principles II.III, the perceptions of the senses do not teach us what is the reality of things (what "is in reality in things") but what is beneficial or harmful to the composite whole of body and mind, since the human body can be discovered and investigated only by use of the senses, but (a) that our commonplace fact assertions are equivalent to extremely dubious theories, based upon (b) "facts" which are indubitable but extremely difficult to indicate, (c) that our talk of senses is as difficult to give a meaning as our accounts of sense-organs are to justify, as well as (crucially) (d), that our p-system seems to have lost, along with the q-system, all its meaning.

scats quite intelligibly that I deny his existence, and

We seem to have no room in either fact or science for man, for statements of which man is the subject, or for the evidencing statements upon which we relied so heavily before in doing science, that x was observed to be y by a man. With the "removal" of man our old facts, our old science, our old modes of argument, and the whole of the old familiar world of characterized things which could be recognised, distinguished and classified, disappear completely. Instead of propositions with subjects and predicates which function as premises in argument, Descartes seems to claim that we have occurrent predicates; instead of clear and distinct relations between concepts we have clear and distinct relations between occurrences and apparently empty concepts; and the two are combined in the guise of a "necessary and clear and distinct truth" that from every occurrence of a "quality or affection" a subject which has the quality or affection can be inferred.

(e) Throughout his writings Descartes employs the pronoun "I" and the pronoun "we" as I have employed them above. To one who, like myself, claims that "men think", "men observe", "men reflect", "men speak", "men are social animals", the usage is clear, and belongs with the fact systems which are stated in a non-technical language. If, as Descartes did, I wish to object to a criticism a man like Gassendi makes to an argument of mine, I can state quite intelligibly that I deny his assertion, can

state that we disagree. But can I assert, as Descartes does: "You are quite wrong in your statement and argument, because I deny that I am a body", meaning by "body" being bodily, and profess to be using "I" in the same sense in stating denial and stating what is denied? When I say that I corrected a popular notion when I showed that it could be supposed that no body existed, and that nevertheless everything by means of which I recognise myself as a thinking being remains, is this in fact even meaningful?¹

We seem far from the heights of metaphysics and principles; but we are very close to the Cogito, very close to the first principle of human knowledge, very close to noting the technique by which Descartes and Cartesians seem to treat "men observe and think" as obviously true, obviously trivial, and yet to be proven false, proven impossible or proven inexplicable with all the aid of logic and of science. The first proposition which must all costs be denied is homo cogitat; yet the first proposition that is to be asserted as a prelude to its denial and as part of the argument to its denial is exactly homo cogitat.

Homo cogitat.

1. So far I have done little but indicate problems; what I want to do now is briefly to relate what has been said to

1. Cf. Reply to Objections to Meditation.2. H.& R.II pp.207-208.

the Cogito as it appears in the Meditations. Upon the distinction between mens cogitat and homo cogitat depends our interpretation of all the general questions raised above.

The argument begins with "I can doubt that I sense q, since previous beliefs that q were false and previous beliefs that the subject of q existed were false". (That this is clearly and distinctly confused as Descartes treats it we can note later). The fact basis is actually "My senses sometimes deceive me"; and "sometimes deceive me", as a fact statement, or "always deceive me" as any sort of statement, entails that I am a man, an organism, an animal with organs. We can, with more sophistication than Descartes, argue that if there were things that were not bodily, did not have organs, but had "our" experiences and talked as we do, knowing that they were unbodily and without organs, they would not be compelled to accept the entailment. But what in fact this means to sophisticates heaven knows, and while Descartes wants to conclude with something like it, he certainly does not begin with it. He wants to prove that there is a fact about us who recognise each other, talk and argue with each other, read each other's writings, which will compel us finally to admit that the "I" in each of our individual cases is a thing which is somehow accidentally related to its sense organs, or to its "senses" which are themselves related to organs in a way which is obvious, if unintelligible.

Doubtless there are many who believe it to be obvious that what thinks is a mind, an unextended thing, and that unless we grasp this we can never understand how men think, sense etc.. It will take many pages to consider the opposed contention that it is easy to understand that men think, that men sense, and completely impossible to understand the explanatory accounts, with or without their discussions of "senses" and "organs" and "cognitive subjects". The opposed contention is quite distinct from the claim that "men think etc." is good enough for the market-place, but what really goes on is....., where the account of what really goes on, unfortunately incomplete and presenting insoluble problems, is not evidenced by "men think etc." but is the genuine equivalent of crude, ordinary language statements.

Quite clearly Descartes, and many others, treat the dubiety of sense-based statements as establishing that I, like all men, am sometimes mistaken, and can never guarantee the truth of any sense-based fact claim or sense-based existential claim. It is only by a hammer and tongs logic that this can be converted into a claim that no sensory experience is veridical, that, for example, I am not able to see and touch and hear the typewriter which I am now using; but it can readily enough be admitted that if there is a sense of "necessarily true" which is not satisfied by any such statement as "I am sensing such to be so", then no man in search of necessarily true statements in this

sense will find them in sense-based judgments, and must look elsewhere.

The meaning of this is tortuously obscure, but what is important for the moment is that having used the fallibility of "the senses" to reject a class of propositions as necessarily true, we cannot at the same time use the rejection of the existential claims on behalf of the "observed" things to justify the rejection of "I am an animal with organs". The argument itself is meaningless if it is denied that I am a thing capable of sensing at all, whether this is held to be "necessarily so" or merely so.

We begin, seemingly, with facts stated in an ordinary language, move by a conventional argument which all men will accept, to an indubitable truth, that when I think that I sense p I think, and the indubitable truth either depends upon the truth of the fact statements (which entails that they are meaningful) or there is no argument at all. If there is no argument, then "I am a thinking thing which can always be certain that it thinks when it thinks" (or "that it exists when it thinks that it exists") is either a fact statement compatible with "I am a thing with organs and sense erroneously" or it is a scientific hypothesis, clear and distinct because it is conceptual, i.e. something which is clear and distinct to me because it is thinkable by me. So it appears in the Regulae; but if it is thus a conceptual proposition, then (a) it gives no information about the

conceiver, beyond that he (or it) conceives the proposition, and (b) no inferences are possible unless further concepts are devised along with rules of use in a conceptual system - and "I am such a thing" is a statement which is meaningful only if the concept-statement belongs to the same level of discourse as the established uses of "I" by men who are socially related in the way the presented argument assumes they are, and it still requires proof, still requires relation to fact statements with "I" as subject and predicates other than "think" in the special sense of the hypothesis.

If, as I argue, the "fallibility" statement can only be made by an animal, here at least by a man with organs, and of a man with organs; if the alternative is that to a "thinking substance" which puts forward the argument "senses sometimes deceive" and "senses always deceive" are meaningless sound patterns; and if there is no "reduction" of the subject "I" in an argument which considers only what "I" can or cannot do, so that the "I" is finally equivalent to "a man" as it was initially equivalent to "a man"; then homo cogitat is not only a justifiable assertion, but it functions as Descartes wants the Cogito to function, as a truth which expands into a science. We have no difficulty in making a further series of statements about "man" since we have already made them, rejected them as not certain in a special sense of "certain", and need only re-assert them as merely true in order to

get an expansion which, if ordered, is what Descartes is seeking as a science.

What we find Descartes denying at various places is each of the condition-assertions above. If x is an animal, x cannot make statements; things without organs can understand " x has organs" because they have the ideas of " x " and of organs; and the Ego of *Ego Cogito*, reached by the *Dubito* argument, is stripped of all body - though it takes several meditations after the *Cogito* is established to justify the latter.

Nevertheless, when we examine the argument in the *Meditations* in some detail, we find that Descartes expands the *Cogito* exactly as I suggested. To the necessary truth "I am a thinking thing" is added "I do think as I do" - the rejection of the doubting permits the re-assertion of what was ignored as dubious, although what is re-asserted is subtly different in either subtle or confused ways. And when we recognise the procedure, the inner light positively radiates.

Thinking, cogitatio, simply is understanding, willing, imagining, perceiving (sentire, sentir); "I am a thinking thing" means "I understand, will, imagine etc.". "Thinking" is generic, and the genus flowers into the species because it is the sum of the species, and the specific terms are themselves general classificatory-descriptive terms for my various "doings". The q -system is established by

noting acts and naming them according to similarities and differences; the p-system is established by naming the whole class of acts; and given the starting point q can be seen to be true, p can be seen to be true, and "p entails q" and "q entails p" can be seen to be true. But this is not material implication, demands no special logic; there is not, in the ordinary sense, an argument at all. In like case is "I am thinking thing and if I were not a thinking thing I would not be a thinking thing".

Where argument might be demanded is at the level of discrimination and classification of acts; or at the level of rejecting from consideration certain of the species in order to arrive at an act which is itself the essence and genus, and does not demand a bodily agent as certain of the species clearly do. Elsewhere the one agent is converted at a point in the elaboration of species into an intimate union, a real man; and Descartes can prove as conclusively that the union is indissolubly intimate in the case of all men while they are alive and argue with one another as he can prove that the mind-part of the union can act on its own and prove to its own satisfaction (or ours) that it is absolutely distinct from body. Descartes says and proves many things elsewhere; but so far as the expansion of the Principle is concerned, it comes first in order because it is generic, and expands into its species because it is generic. the same way that he gets rid of

When we turn to the physical, the pattern is roughly the same. The nature of body consists in extension alone because hard bodies and soft bodies, bodies of various colours and weights, are all extended. To say that x is a member of the class bodies is to say that x is a member of the class extensions. We justify the principle by pointing to the members of the class of which it is the genus-name or genus-character. Together the two principles give us the only two summa genera Descartes will admit.

It is true that at least many of the other principles do not work in this way; it is true that we have classified acts on the one hand and extended things on the other; it is true that Descartes proceeds to remove from science the "bodies" which are members of the class extensions, the trees and sponges and stones which, as values of x , provide a subject for " x is extended" that prevents length, breadth and thickness being merely dimensions of void space - which, as space, gives Descartes a uniformity for the matter of his geometrical physics, and which, as void, needs only to be called "full" in order to make the geometry material; it is further true that while Descartes calls the classes minds and bodies, he has to devise a special argument to get from the class of acts to the agent, the thinking thing or substance, and that by this means he gets rid of "man" as a thinker in the same way that he gets rid of

man as an extension, although the "body" to which the mind-substance is related is quite obviously the human body.

It is equally true, though this needs to be shown in detail, that just as Descartes converts the quality "extension" into a substance he converts the activity "thinking" into a substance, naming it "thought" and preserving its connection with human beings by the use of the possessive "our". And correspondingly he uses sensory evidence in order to give meaning and "reality" to the statements of his explanatory physics.

11. We could readily enough accept "There would be no physical science unless there were thinking things, and bodily things for thinking things to think about", and thus accept "There are thinking things" as the first principle in orderly philosophising. We could then accept "There are extended things" as the second principle in so philosophising. And we could regard both as necessarily true for simply the "unless" reason, while at the same time regarding them as fact statements.

Either, we might say, is entailed by "There are scientists" or "There is science", and the existence of the one or the occurrence of the other we could take as obvious. Indeed, by denominating either proposition "science" we could prove by uttering it that we exist as scientists, thus assuaging any anxiety resulting from an assumption that words in a language may be meaningfully

used without "having any reference". (Much of Descartes' metaphysics is concerned with precisely this, i.e. proving that individual existential statements are meaningful and true, given that universal propositions are meaningful and true independently of existential and individual propositions. We have to investigate the theory of ideas, the theory of perception, and the metaphysical logic to see why the arguments are developed).

Neither of the two principles demands an alteration of our other factual beliefs, which have their own criteria, and criteria for changing criteria. Both appear to be general statements logically related to the individuals who are members of the class "thinking things" and the class "extended things", individuals already recognised (or the statements are meaningless to the non-recogniser), individuals which sciences can study and further classify. Assume, however, that at some stage the principles are the only propositions which are understood, and nothing follows. Nothing can be related to principles because there is nothing to relate. But to us, knowing something of a describable world and developing science, the principles are logically related to other fact statements.

Certain facts, or new facts, about man as scientist might lead us to conclude that our account of man needed alteration, perhaps should include an account of something in man which acted in certain ways necessary for man to act

in the way or ways he does in doing science, and many accounts of mind seem to imply this. Indeed, for three hundred years it seems to have been standard doctrine in certain schools that Descartes proved it. We shall be much engaged in noting how what is "proved" denies the facts which justify the proof, and the role of "substance" in proving that there may be facts other than the first fact. Equally, if we believe that conceptual systems must be devised to explain facts, we may devise such conceptual systems. Descartes' "soul" and "ideas" appear to be such conceptual systems; but the role of "substance" is to help turn souls and ideas into the only realities, while all else (men and their world) appears as complex concepts conceived by an existing concept. This too must concern us in detail, since whether the soul is man's concept or whether "man" (and "body") are the soul's concepts, we should hardly look for a spatio-temporal relation between a thing and its conceptions. Nor need we be deterred by the absence of such considerations as these from the literature on Descartes.

Nor are our principle-propositions trivial. The insistence that the important thinking things - if there are to be discovered thinking things other than men - are men stresses that conceptual systems and theories are humanly devised, and not divinely revealed, as it stresses that observation-procedures are human, governed by human

needs, beliefs, traditions and sensory incapacity - and so are fallible, in degree and even in kind. The situation "man under conditions Y observes that Z is W" admits of investigation, and a variety of sciences develops from the investigation. We can learn more about men, more about the conditions, more about Y and the W-ness of Y. That we learn to observe better, to discriminate more closely, does not entail that we cannot observe, cannot discriminate, or that observation and discrimination are irrelevant to science and to philosophy. As Descartes' substance doctrine adapts itself to these contexts, we shall have difficulty in telling whether our questions are epistemological, psychological, neurological, physical, optical, mechanical or theologico-embryological; but we needs must do more than label them "ontology", and introduce a special perceiving substance and a special act or power of "perception" to make the ontology intelligible.

The view of the human situation above indicated, the view of man in his world, is naive; but in such a situation and world we find a number of languages which are, so to speak, adequate. They permit the making of fact statements, the raising and settling of problems, and many problems, and they present to us grammatical and logical functions of words and terms in statements and arguments. In the realm of fact statements we normally make no distinction between what is truly said, what is truly thought, what

is actually observed, what is remembered, what is noted, discovered, perceived or found to be the case, and what just is so. It is here that a variety of sciences find their meeting place, their common problems, and their meaning qua sciences.

These facts we assume, if again naively, to be at least the foundations of sciences, and the techniques for discovering or determining facts are human. Further, we assume readily enough that facts are necessarily compatible with one another, that anything discovered to be so belongs with whatever else can be discovered to be so. The familiar world, as we discover it, has a factual structure, spatio-temporal relations and behaviours of things being part of the world.

It is not unusual to find it claimed that no scientist, no philosopher, wants to deny facts, but that here our problems, as scientists or as philosophers, begin. What is unusual to find is the assertion that here, too, our problems end, in the sense that a philosophical or scientific system which had no relation to facts, or whose entailments were fact-claims which were contradictories of discovered facts, would present no philosophical or scientific problems. Whether such a system could be meaningful is a further question - what is important is that it could scarcely be called philosophical or scientific. That we should find our ontology in such a

familiar world of observation and discovery, along with our metaphysics, and that the familiar world should present itself on inspection as a conceptual system without thereby ceasing to be factual or occurrent, may appear as outrageous suggestions, in spite of the facility with which philosophers exemplify their technical terms and statements by reference to facts and occurrences.

The suggestions I am making, claiming further that most sections of Descartes, and all of his philosophically technical terms, can be related directly to the familiar world. What is of immediate concern is that at the level of familiar facts we find a use for "thing" and "substance" or uses for "thing" and "substance", established prior to special technical uses by philosophers, scientists or, in an indirect manner, by grammarians. At this level "man" is a "thing", and "flesh" is a "substance"; and it is nonsense to deny that a man is thing, that man is an animal, that a man is born of woman and dies, willingly or unwillingly, having experienced much, learned much or little, acted and suffered in multifarious ways. All men do science, if incipiently - Descartes agrees. Some do science in complicated detail, and explicitly; some do logic and metaphysics. Malgre Descartes, we have no reason to deny that a man is a man at any level of his activities; no reason to assert that when a man decides to crawl and crawls into a pool and meditates he ceases thereby to be a man.

What seems to become apparent as we proceed is that

Descartes is maintaining as factual truths (a) that there are men who do science, and (b) that there are souls which think and which are, while God permits them, eternal doers of science. What he is forced to maintain is that souls are substances, and that men are substances; and this, on the definition of substance as conceivably existing independently of other things, results in the contention that men can exist or be conceived to exist independently of souls ¹. The proposition "There are men who do science" is, however, so woven into our language and discourse, our general cosmology and our science, that any attempt to deny it or to ignore it results in a piecemeal collapse of all our thinking. What we shall find immediately below is that Descartes regards "there are men without minds" as logically impossible. The collapse in general cannot be demonstrated except at length.

When "there is a soul which does science" replaces "men do science" we, who are permitted by Descartes to retain our human identity by the use of personal pronouns - and by being merely related to souls, are thus presented with

1. Cf. Broad's contention that minds are "bound to organisms". But this is distinct from (a) minds are bound to systems of particles, (b) minds are bound to figured extensions, (c) minds are bound to what can only be conceived or imagined by a mind, (d) minds are bound to animal-machines, (e) minds are bound to brutes. The "bodies" here may represent stages in developing science, but "mind" and the "binding" stay magnificently self-identical at all stages.

(i) a logic which has no application, and which consists largely of negations of an established logic, (ii) principles which mean nothing unless they are restored to the familiar tongue and the human situation, (iii) a familiar world language and no familiar world in which to use it, (iv) ideas which are of nothing, represent nothing, so far as the mind which "has" them is concerned, (v) the need to imagine a world in which all is clear and distinct but which cannot be related to the thinking mind-thing, or to the world which, known to us, we are trying to explain, so that we have also (vi) explanations which explain nothing, since the minds have nothing to explain.

III. If I could find a short way through these complexities I would follow it; but I cannot. The difficulty is that of considering distinct issues and yet showing the relation which makes them genuine issues.

(a) Consider a Cartesian explanation¹: Salt water bites the tongue. This is fact, to be explained. It is certainly clear and distinct that little particles shaped like needles would stick into flesh as needles do, just as clear and distinct that they would cause pain of a kind as needles do. (Need we hesitate in the claim because it seems to be empirical fact that microscopic needles would not?). The model, like all models if they are familiar

1. In *Les Météores*.

in other contexts, seems to work, although as Blaise Pascal pointed out to Descartes' teacher, Père Noel, if we explain by positing the existence of any entities anywhere, with whatever powers and qualities we like, explanation is as easy as it is futile.

What is needed for the explanation of sea water biting the tongue is the truth of the assertion that such happens because salt water is so made up. The "biting" can scarcely be done by particles which are not "in the water". Descartes is clearly entitled to assert that salt water is so made up, but that it must be so is certainly not clear and distinct in any sense. Indeed, what seems clear and distinct enough, that needles and the like bodies do penetrate, and do cause pain, which may be held to have the obscurity of mere facts, seems to become extremely obscure in the realm of necessary truths.

The tongue is a human tongue, and human beings are hurt by the pricking of the tongue. True, we can say in Cartesian terms, that the mind feels pain when the body is injured, - but this is the proof of the unity of man, and demands as a component in the proof observed needles and flesh, i.e. observations which the disjunction of the two substances makes meaningless, since the unextended mind cannot observe. Further the disjunction is logical or conceptual, the "cannot" a logical "cannot". Likewise the "joining" is logical - the mind must be united to the

body, must be united "pain feelingly" or "thing perceivingly" united. Why must it be? Because otherwise, in Descartes' phrase, we should not have a Real Man; we should have no possibility of observing.

The particle-statement might be held to be clear and distinct to someone who has grasped the necessary principles "all bodies are made up of extensions", "bodies may be of any shape", and "any gross behaviour must be explained by the particular figure of minute components". But in any case, the particular figures being unobservable by anyone, there is no point at all in my saying other than "little particles may be of any shape at all" until I have discovered true descriptions of phenomena that need to be explained, i.e. gross bodies. These not only guarantee the "reality" of the explanatory shapes, but constitute the only reason for saying either that particles exist as bodies do, or that splinters and not little balls, corkscrews or solid triangles are micro-existents. What this means is that even the statement "there are microscopic bodies" demands an argument whose initial premise is that gross and observable bodies exist, that bodies can be discovered to be somewhere somewhen. And if the argument holds, if we do to the tongue and the body what we do with sea water, the relation of penetration is no longer needle-like, no longer simply meaningful, and we seem to have a gap which neither observational facts nor principles can bridge.

Divided extended substance leads on to no world - and it does not lead back to a mind, a thinking substance, but further and further away from it, unless "divided extended substance" is what the thinking substance merely thinks.

Granted human observation and factual experience, the particle thesis may be useful, and we might well regard the utility and the process of justifying the thesis by argument as establishing its factuality. Pragmatism and rationalism here, as usual unite, if not less uneasily than usual. Descartes' difficulty is that what is clearly and distinctly, and necessarily, true, when related to the facts which make it really so, becomes only possibly or probably so; and the further difficulty is to show that the p which explains q is in fact compatible with q , i.e. how, if the physical world is a system of particles, or merely figured extensions, there can possibly be a familiar world and an observer of it. And the answer seems clear: there is no familiar world, no observer of a familiar world. Hence follows a theory of perception which cannot be stated intelligibly but which "proves" that the familiar world is a private illusion of a featureless mind.¹

We must note how different this is from the claim that molecules exist - we can see them with microscopes - or the

familiar world for us. But "our" disintegrates again under

the consideration of "science" or metaphysics; the thesis
1. The illusion, the familiar world, is assumed, of course, to be public; only recently has the Cartesian seed flowered in full.

claim that we could see atoms if certain conditions were fulfilled, or even the claim that atoms could never be seen because of actual conditions. Our concern is now with what is observable and the conditions of observation; our problem is of the systematisation of truths about particles and truths about gross bodies, bodies bigger than particles. We have no reason for saying that particles alone exist because they cannot be observed, and nothing can be observed because only particles exist. Microscopic and macroscopic bodies are related to man, the observer, exist independently of man in the same world as man. There is no compulsion to deny that salt water is not something observable, which "bites" the tongue when we take a mouthful of it.

What really is Descartes' position? At least twofold. First, the whole familiar world is illusory, is mental or unreal, a system of "ideas" or "states" aroused in minds by existent particles and motion; second, it is not to be related to minds at all, but to the intimate-union, though in the guise of "sensations". (Vide Principles I.XLVIII). It is the now conventional ambiguity of "sensations" which enables Descartes to preserve ideas for the mind and thinking or thought, extensions for physics, and the familiar world for man. But "man" disintegrates again under the consideration of "science" or metaphysics; the thesis of British Empiricism appears to be that minds, not men, or dualism as Cartesian or as a translation of Descartes.

are the subjects of all sensation-statements. As we proceed with the unravelling here we begin to understand why it seems intelligible to men to ask whether sensations are mental, are physical, are neither or are both; we begin to see the possibility of treating "minds" and "particles" as components in conceptual or explanatory systems which are totally inadequate for the purposes they are philosophically held to serve; we begin to grasp something of the role of "man" in fact-systems and in philosophical and scientific theories.

(b) When doing metaphysics, Descartes preserves the use of pronouns in a way that seems foreign to science because the "I" refuses simple universalisation without losing its first-personal character. But the metaphysics depends upon this universalisation, upon there being a plurality of things capable of using the pronoun "I" and recognising each other, so having a use for the pronoun "we". This dependence is important in a variety of ways, not the least of which is indicated by the statement that if I alone exist what is called metaphysics is meaningless to me, or the statement that if I can never "know" that anything else that can think exists, I can never understand metaphysical arguments. This becomes both clear and important if we look at what Descartes wrote (assuming, in doing so, a familiar world) instead of presenting our own form of necessary solipsism or dualism as Cartesian or as a translation of Descartes.

What, for example, Descartes offers us in Principles I.VIII is a conditional argument: if and while we suppose that there is nothing existing apart from ourselves, we must suppose that any statement about ourselves which includes a predicate not "supposed" to apply to ourselves does not apply to ourselves. Cui omnia quae a nobis diversae sunt supponimus falsae esse - "supponimus" falls completely outside what is supposed. What Veitch presents us with is: "while supposing that there is nothing existing apart from our thought" - and he is following in his own fashion the French version, "qui sommes persuadés maintenant qu'il n'y a rien hors de nôtre pensée qui soit véritablement ou qui existe". What is common to these radically different statements is the plural pronoun used in the ordinary language fact statement "we suppose that..." which is not a rhetorical façon de parler but the foundation of the argument.

We are familiar enough with philosophical wrestlings with the problem of "other minds", it being taken for granted that we are familiar with..... with the addition of "knows

But the problem cannot be thus stated. "I am familiar with the other minds problem, it being taken for granted that I am familiar with my own mind and with other bodies which are called 'men' ". Yet this does not work either. The "I" and the "we" both belong together and fall apart. Put in the form: "How do I know that other men or other animals experience what I experience, feel pain and see coloured

things, feel and sense as I feel and sense?", the problem is intelligible, can be formulated by any man, can be discussed by many men: "I" and "we" fall naturally together, and our difficulty is to see why or how the term "minds" is to be introduced at all. Somehow, only when "I am a thinking thing even if there is nothing else in the world" has been transformed into "I am a thinking thing even if there are other things in the world", and "I am a thinking thing" has been expanded into "I am a thing that can sense and imagine and remember", with the entailment that there are things which can be sensed, does the plurality of "we" become meaningful. But at the same time "I am an animal with organs who can observe other animals with organs" seems to have been asserted.

Full consideration of the Cogito and its expansion must be postponed; but the expansion is presented without argument - "I am a thinking thing, i.e. a thing that doubts, understands, affirms, denies, wills, refuses, imagines and perceives" (in Meditation II), with the addition of "knows a few things, is doubtful of many, loves and hates" (in Meditation III - "loves and hates" appearing only in the French). It is true that Descartes seems to want to restrict these in the name of necessary truth (or of personal incapacity to be mistaken - a different matter for any but a Cartesian), to façons de penser, to what Cartesians call "modes of consciousness" (preserving one systematic ambiguity)

or even to "seemings to be such and so" (thus permitting another systematic ambiguity, which bedevils Empiricism). These ambiguities, which present us with the "choice" between "no thing can ever be an object of awareness" and "everything which is an object of awareness is a thing", are primarily responsible for the length and detail of this thesis.

But even taking the expansion simply the complications are marked:

(i) All of these "modes" are, qua distinct occurrences or types of occurrence, contingent in relation to the principle. Descartes states them, and he cannot deduce them, unless they are recognised as species already related generically by the "I" who arrives at the Cogito.

(ii) The expansion is through the use of "I", not of "thinking thing". Veitch slides naturally into a use of "thing who" - but the alternative "thing which" begins "I am a thing which", and passes to facons de penser, cogitandi modi, which I can be sure exist in me, along with the ideas which I know are present to my mind, or are found in my mind.

(iii) What are asserted are classes or types of activity, not individual acts, and, among other things, this indicated how much is assumed by treating "I" as the subject of the whole set, and as known to be the subject of the whole set. It is notorious enough that those who begin with a simple

cognitive and self-cognitive subject run into apparently insoluble problems of personal identity; and it should be equally notorious that the parallel argument to the "wax argument" is that the simple concept of substance, extended or thinking, is a matter of intellection and reasoning, not of intuitive acquaintance.

(iv) Descartes appears to assume that we can give a meaning to "seem to see" which replaces all uses of "see", or that "seem to see" can be given a meaning independently of "see". At least he asserts that so far as the indubitable claim is concerned, there is no difference between sensing, imagining and dreaming.

Two arguments seem possible, if we accept it that the rest of our language is unaltered:

(a) All sensing is just as we take it to be qua "experience", but all "awareness" is of something "mental" by a mind-thing. There is nothing existing in the "world" that can be sensed - and nothing in the world which can sense. We, in other words, can say "If nothing is ever sensed which is a thing in the world, and sense-organs and bodies can only be sensorily observed, then for a thinking thing there can never be a world in which it is". For a thinking thing, it can alone exist. And only by a hang-over of the naively realistic ordinary language which it could never use can the thinking thing "think" of sensing, dreaming and imagining.

Descartes, like so many others, treats the expansion of "thinking" into species of cognitive activity as not entailing any corporeal features on the part of the thinking substance by assuming that the familiar concepts and language are available to a "mind" which could make no distinction between dreaming, imagining and sensing - and is it not clear that it is the denial of the ability to distinguish between these activities which is the basis of the metaphysical doubt and the proof that minds are the only cognitive subjects?

But when, as an after thought, "loves and hates" are added, any attempt to make these in any sense relations between a thinking thing and "ideas" or "mental objects" seems nonsensical; and Descartes himself is destined to prove, and to repeat his proofs, that imagining, perceiving, remembering, having appetites and passions and sensations, are impossible unless the agent is bodily, even if the world is never perceived as it is.

(b) The second argument leaves it open that we should be able to gain limited knowledge of the world by sensing, as distinct from illusory perception, imagining and dreaming, but insists that we might on any particular occasion be mistaken. God, who created us bodily, guarantees by his goodness the truth of "x is extended" if we are awake when we sense, judge and assert. At this stage we are clearly

"men". And we might note a sense in which "extension" is fundamental - there is an initial plausibility in arguing that we could not be men unless we had the shapes we have, our organs had the shape and the spatial relations - the structure - which they have, and that colour, smell, taste and sound are irrelevant in the sense that they could all be different and yet men function as they do function. But it remains that if we deny "sensible qualities" to be qualities of bodies, we deny knowledge of any bodies, of men or of ourselves as bodily.

Descartes' physics of particles, his reduction of the "physical world" to particles and motions, of perception to effects of motions (even if we admit "on organs and brains"), appear to be completely incompatible with the thesis of occasional error or of veridical perception only of shape; but at least occasional veridical perception is essential to his general science, including his anatomy of animals.

In the case of either argument we find that somewhere must be included the notion that the agent is bodily, and Descartes knows full well that he is bound to a thesis that sensing and imagining are impossible unless there are sense-organs and brains and nerves and muscles and objects which act upon them, just as he knows that the motivation of his philosophy and his science is to enable men to gain the greatest control over a useful world of things edible and usable. The seeds of this are present in the Regulae, already growing.

Descartes knows quite well that he is going to assert that there are many men, men who can speak to one another, whose bodies he can anatomise, who are born and die as the result of the union of semens and the failure of some part of a system of organs, a failure which it is his aim in medicine to postpone. He knows quite well, since he has proven this as well as the un-souled character of the non-thinking brutes, that the soul is not lodged in the body as the pilot is lodged in a ship; that "it is necessary for it to be joined and united more closely to the body, in order to have senses and appetites similar to ours, and thus to constitute a real man", he has shown in the Discourse (Part V).

The oddness of this language escapes Descartes, as it has escaped his followers and his critics; what also has escaped his readers is the extent to which this doctrine reads like a rejection of the thesis that there is a rational soul which is quite distinct from the body of man. The way up, the way of hyperbolic doubt, is to arrive at a first principle, but a first principle in orderly philosophising. The way down is different from the way down, synthesis from analysis, just because it is ordered and reversed. Everything follows after the first principle, but nothing follows from it. Even if it is a rule of method, the truths to be methodically ordered have to be known.

This leaves us with further problems of logic and

methodology; but the immediate question is the nature of the "real man". It is man, real man, who is Descartes' problem; constituting "man" is one aspect of the problem of relating metaphysics and physics to the world they "explain". For the thinking substance, unless it is mistaken in thinking that that is all that it is, there is no problem of a dualism. If minds need no bodies to sustain them, need no bodies to examine in any way, they have no need of bodies. Indeed, we have no difficulty in giving an account of minds if we confine ourselves to what they do and refrain from asking how they do it or what they are, accept a definition and ask no questions of what is defined or of what defining amounts to. We can give an account with equal facility of bodies if we have carefully removed minds, and all familiar things in the world as not really bodies, from physics. Bodies are limited extensions, mutually in contact and filling space. Both minds and bodies can exist in the same world, a conceived world, without any problem of dualism even for us, since unextended minds can exist anywhere in extended body or bodies.

Since I want to argue that the problem of dualism arises because the world is not like this, that it arises for us because we cannot fit ourselves and our world into the metaphysical or the metaphysical into ourselves and our world, and that the question can only be ours; and since

I want to argue that the Cogito as reached by argument fails to reduce the subject of "is sometimes deceived by the senses" from "man" to "mind" because it ignores the subject, and so never gets beyond a familiar world, familiar language statement, true of all men at all times (which does not mean "always true of all sensings"), let us examine this man-dualism in some detail.

It is hard to remember Descartes' own words about minds, about bodies, and about man. The only man who can verify all statements is man - Descartes' "intimate union".

2. (p.110). But this "intimate union" appears to be finally impossible. Descartes appears to recognize this clearly in his "Meditations". He has one great "substantial" union, and another of actual inseparability, of mind and body. The conclusions are conceptually inseparable. This is related to the absolute distinction between sensing, imagining and conceiving, (the scientific and metaphysical reflection). Descartes' confusion and contradiction can be illustrated at length.

It is suggested that Descartes took moral principles to be "material", and that Aristotle did not make this mistake.

(3-4). Substance and Subject.

Accepting propositional fact statements, we can frame a number of statements about subjects and predicates which are purely formal.

This is elaborated and (with "substance" identified with "subject" related to Descartes. If, as he does, we insist that "substance" in a subject, (a) we cannot preserve our ordinary language, (b) relations between substances are empirical, and not necessary, or (c) we surrender predication, although the foundation of the main argument is that predicates are "known" and that substances are "unknowable" - they are inferred via a "principle".

The nature of this "principle" will concern us below.

Chapter IV.

Man and His Dualism.

If there were only particles and minds, there would be no problem of dualism for minds, particles or God.

1. The problem arises because human beings think and are related to bodies of which they are aware, the condition of this being that they are bodily.

Our modes of talking about senses and sense-organs is confused. The treatment of organs as "apertures", or as "ways in" or "ways out", must be related to facts of generation and birth, i.e. to "biological" science, and to social and political science. Descartes takes these sciences for granted, but his main thesis is incompatible with them being possible sciences.

He is bound to recognise three classes of statements, viz. about minds, about bodies, and about men. The only agent who can verify all statements is man - Descartes' "intimate union".

2. (p.116). But this "whole man" appears to be logically impossible. Descartes' appears to recognise this clearly in a letter to Elizabeth. He has one proof of absolute separability, and another of actual inseparability, of mind and body, and the conclusions are conceptually incompatible. This is related to the absolute distinction maintained between sensing, imagining and conceiving (or scientific and metaphysical reflection). Descartes' confusion and contradiction can be illustrated at length.

It is suggested that Descartes took formal principles to be "material", and that Aristotle did not make this mistake.

(p.31). Substance and Subject.

Accepting propositional fact statements, we can frame a number of statements about subjects and predicates which are purely formal.

This is elaborated and (with "substance" identified with "subject" related to Descartes. If, as he does, we insist that "substance" is a subject, (a) we cannot preserve our ordinary language, (b) relations between substances are empirical, and not necessary, or (c) we surrender predication, although the foundation of the main argument is that predicates are "known" and that substances are "unknowable" - they can be inferred via a "principle".

The nature of this "principle" will concern us below.

"That is why the first thing of which I disapprove is your saying "Man has a triple soul". This word is a heresy in my religion, and it is, religion apart, strongly contrary to logic to conceive soul as a genus, whose species are mens, vis vegetiva and vis motrix animalium. For you should understand by the sensitive soul only the motive force (vis motrix) unless you confound it with the reasonable soul (nisi illum cum rationali confundas). But this vis motrix is not different from the vis vegetiva in species; both belong to a genus other than that of the soul."

Descartes, in a letter commenting on and correcting a thesis of Regius, May 1641.

"In man the soul is one, and that is the reasonable soul; one should not count...(as human?).. any action except one which depends on reason. But the vis vegetandi, the vis corporis movendi, which are called the anima vegetativa et sensitiva in plants and brutes, are also in men, but they should not...(there?)... be called souls because they are not the first principle of action; they are of quite other kind (genus) than the rational soul".

Ibid.

"Passions (affectus) have their seat in the heart, in so far as they are related to the body; but in so far as they affect also the soul, their seat is only in the brain".

Ibid.

"I thought I took sufficient care to prevent anyone thence inferring that man was merely a spirit that made use of a body; for in this very Sixth Meditation in which I have dealt with the distinction between mind and body, I have at the same time proved that the mind was substantially united with the body; and I employed arguments, the efficacy of which in establishing this proof I cannot remember to have seen in any other case surpassed. Likewise, just as one who said that a man's arm was a substance really distinct from the rest of his body, would not therefore deny that the arm belongs to the nature of the complete man, and as in saying that the arm belongs to the nature of the complete man no suspicion is raised that it cannot subsist by itself, so I think that I have neither proved too much in showing that mind can exist apart from body, nor yet too little in saying that it is substantially united to the body, because that substantial union does not prevent the formation of a clear and distinct conception of the mind alone as of a complete thing".

Descartes, replying to Arnauld.H and R.11.p.102

Chapter IV.

"Man and His Dualism."

Man and His Dualism.

Suppose there were a world of particles, and of minds which occupied no space and went on thinking in their own peculiar way, ignorant of their location or of their relation to the particles of whose existence they were ignorant - the "inner light" does not shine into the extended darkness.

What philosophical problems could there be for such minds? Certainly there could be none of the relation between minds and bodies. And what philosophical problems could there be for a god who, aware of the location of the minds and of their unextended thinking, is also aware of the particles in which they are located, and can assert (a) that they are thinking substances, (b) that they are not bodies, and (c) that each is where it is when it is?

What meaning can we give to "thinking" in the case of such a substance? To seeing, hearing, touching, tasting, smelling, imagining, willing, desiring, loving, hating, being angry, doubting, denying, judging, being aware of itself?

I have no answer. Nor am I assisted in "understanding" the model by Descartes' accusation that I am trying to imagine minds; what I should do, seemingly, is to imagine the "world" and then conceive minds so rapidly that somehow the two combine into one "world". Or I should conceive them both, by using the words I have used above, in

presenting the world of minds and particles, understandingly. But "understandingly" is what evades. I am saturated with the prejudices of my childhood, and can reduce neither myself to an unextended thinking substance which "thinks just as I do", nor the familiar world around me to a world of particles in motion.

I can, if I say it quickly enough, give a meaning to "when you think and dream you are not aware of yourself as extended, and the unextended minds are just like you and think just as you do". And if I go on very quickly I can add "and the problem for minds would be to justify the beliefs they had that certain of their thoughts were true, that certain of the things that appeared to them really existed". But I have to go very quickly, or I find myself thinking that this is almost the reverse of my own case, since what the mind would have the least evidence, no evidence, for believing, I think that I have every evidence for believing; and unless the mind happened to think of the world as a system of particles in motion, without having read Descartes, the mind would in fact be quite in error in thinking that anything it thought was true, that anything it thought of existed.

The mind, supposing that it could as I cannot, conceive itself as an unextended thing whose only attribute was thinking, might find a dualistic problem in trying to relate its self to its objects, i.e. its ideas, or what

it thinks or thinks of. What it cannot find a problem is relating its ideas, or thoughts qua what is thought, to what it knows to be not-thoughts, not ideas.

Perhaps I am wrong in trying to find a problem here, because this sort of thesis is a solution to problems, not itself a problem. Certainly it is the sort of thing which is held to be proven, and proven in a variety of ways, by philosophers and scientists. To understand the solution we have to understand the problem. And what seems implied by this I can understand: the philosophical problem, the problem of dualism, arises because this mind-particle is not the human situation, the situation of any man or any philosopher.

1. It arises because (a) human beings, whatever they are, both think and are aware of bodies with which they are related, and (b) human beings are bodily, this being the condition of their awareness of bodies around them and of the bodies being so related to them that awareness of the bodies is possible.

It is because man is born with eyes and ears and a palate and a nose and a body sentient to touch, to heat, to cold, that he is capable of awareness of a world which is not himself. Let us recognise immediately the difficulty we have in talking about this situation at all without suggesting that the man is somehow independent of his

1. And, similarly, independent of his body

body, his sense-organs.¹ Our everyday expressions can be treacherous, can lead us into apparent contradictions and nonsense, though they have not driven us as yet to the heights of talking about minds as having ears and noses and palates - that minds have eyes is perhaps on the way to this, but we can still say, with Descartes, "but of course they really haven't eyes".

Our modes of talking about senses and organs is, nevertheless, a subtle and intricate mess. We think of the eyes as tools or instruments, like little telescopes which we bring with us for the purpose of seeing. It seems plausible enough to say that men can be born without eyes yet with a sense of sight that needs only the provision of eyes to be exercised, and a defect in the optic nerve that could be remedied would be like the temporarily stuck eye-piece shutter of a telescope. If the ears and nostrils and the mouth were blocked, the man would still be a man, only he would hear and smell and taste nothing. The ancient thesis still holds - nothing would be able to get in. The man, the person, contrasts with his bodily parts and organs, and so with his body. The body is a house, a prison, in which he is confined, but there are certain windows. We still have, however, the visual story of the man looking out and the other-sensory story

1. And, similarly, independent of his mind.

of "something" coming in.

The two stories have entirely different conclusions, but in one point they agree. Accepting the prison or the house model, each leads to the admission that a man cannot be in a man, and what is inside is really the man, who is really a person, a mind, a soul, a self. And, seemingly, all we have to do is to treat the "visual windows" as letting in, instead of as apertures for looking out, and the man-mind-self is an unextended thinking substance in a world which, so far as he-it is concerned, contains nothing whatever.

In that case what I am now going to argue is nonsense. Babies are born with component parts defective or missing entirely - real babies, including those who comply with one of Descartes' criteria for objective existence, that they appear to their parents against their parents' wills. But all too frequently they are born in such a state that it is not possible to think of them as human beings, just like ourselves except that they lack eyes or sight, middle-ears or hearing, palates or taste or smell. It is no longer, once these are considered, easy to say "No baby is more or less of a baby than any other". We can no longer say "No eyes and no vision, but a very intelligent man - intelligence and being an intelligent man do not depend upon having eyes". and extend this uncritically to the general statement that "thinking" and intelligence do not depend upon having sense organs.

We are brought face to face with the complete collapse of our talk of babies as if they were human beings who had or lacked, brought with them or failed to bring with them, certain useful but dispensable bodily parts, when we contemplate the cases where many parts are missing or useless, or when we try to think of a baby who has none of the senses - we approach the situation, the impossible situation, of thinking of a baby who is born without any body at all.

Aristotle found the Pythagorean notion of "any soul in any body" ridiculous, absurd in the face of facts. Descartes, too, claims that ignorance of our bodies has distorted our beliefs as to what the soul is and does, and the claim is meaningless unless the account Descartes proceeds to give of the animal and human bodies is literally true of bodies which exist and can be examined, dissected, and described. Both are in these connections asserting that there are right and wrong accounts of the soul as well as the body, and Descartes' account of the body is not in terms of particles and vortices (except in odd cases when he is explaining what it was before it became what it was) but in terms of bones and muscles, sense-organs, hearts and lungs and arteries, blood and spirits and chyle. His claim that the behaviour of animals can be completely described without mention of sensing, perception, feeling,

appetite, emotion, or life (in its ordinary connotation)¹ is a further question.

Both, moreover, raise questions of generation, of semen and fertilisation and intra-uterine development, so that in considering either we are entitled to consider how man becomes a man, as well as the contrast between the dead body under the anatomist's knife and the living creature who looked and listened and spoke, who perhaps thought and reported his thoughts and led philosophers to think that considering the thoughts reported was studying some individual substance in its entirety.

It is because men have organs and powers of sensing that the "world" half of the dualism is discovered. But it is also because men have stomachs which make possible ingestion and digestion, have complex structures of tissues which make possible being in pain and a state of no pain or pleasure (at least we have no evidence of toothache on the part of those who have never had teeth), because men demand sustenance and shelter, are capable of association with other men and women, of loving and hating and breeding and fearing and desiring, of anxious apprehension, of discrimination and focussed attention, of developing a language, a science, a religion and prejudices and doubts, that Descartes the man could exist as and when he did, be

which cannot be translated into the same - valid as can

1. A conventional interpretation of Descartes. It is in fact not difficult to find sections of Descartes in which the opposite seems to be assumed.

educated, become interested in traditional problems, devise a method and begin to order his own knowledge.

Descartes can scarcely be held to deny these features of the human situation, of his own situation. He takes it for granted that these features apply in his account of his own development, in discussing his scientific and philosophical activity, just as he takes for granted a community of interests and language (the latter being a proof that human beings have minds while animals do not). Certainly it would be illegitimate to insist on the historical development of Descartes himself and of the social and scientific systems of his day in considering a particular problem that he raises, of the nature of substance or the formula for a conic section - we do not solve problems by turning our backs upon them and considering other matters. But Descartes' general problem is one of development and history, of how we think and how our knowledge develops, of minds and bodies as existing things which are associated at one period of their histories, and that period of association is a period when the union of the two is held to constitute men, who themselves have a history.

Our talk of men is based upon this historical feature of their existence; it enables us to make a vast series of statements about men as social and political animals which cannot be translated into the mind - talk or the body - talk provided by philosophers (or by scientists).

Yet obviously such talk of men must be relevant to the problems philosophers raise of minds and bodies, just as it appears in their treatises alongside talk about minds and bodies. For Locke it is "mankind" that is perplexed; it is men who think, or do not think, always. The Regulae present a method for men, all of whom are capable of thinking and so of doing science. Dualism becomes a problem not because there are minds which are unextended and bodies which do not think, but because there are "intimate unions", because there are men - and it is too easily forgotten that Descartes has a proof of the intimate union, admits (Principles 1.XLVIII) that appetites of hunger and thirst, emotions such as anger, joy, sadness, love, and all the sensations - pain, titillation, light and colour, sound, smell, taste, heat, hardness and other tactile qualities, must be predicated of the union and not of mind or of body. In the Discourse as in the Traité de l'Homme we find the same stress on Medicine, upon the curing of ills and the prolongation of life (of man); and a central theme in the Traité de l'Homme is the error we make in attributing far too much to the soul. "It is because of our ignorance of anatomy that we have judged dead bodies to have the same organs as the living, and that all that was lacking was a soul, i.e. all movement was due to the soul" (Section 11). "All bodily movements not felt to depend upon our thought must be attributed to the disposition of

the bodily organs and no more" (12). The supposed statue or Machine de Terre was to be constructed by God "in such a way that he not only gave it on the outside the colour and shape of all our members, but also he put in it all the pieces requisite for making it walk, eat, breathe, and finally to imitate all those functions of ours which can be imagined to proceed from matter, and to depend only on the disposition of organs". (Première Partie).

Examples can easily be multiplied, and as they multiply we become less and less certain as to which Cartesian thesis provides the background of the statements. We seem far indeed from the simple notions and necessary relations of the Regulae, far indeed from the physics or from the Principles. What must be stressed is the triad of assertions which makes for a problem of dualism: "if x thinks x is a mind, and x is not extended", "if y is extended, y is extended and incapable of thought", and "if z hungers, thirsts, desires, feels anger, joy, sadness, love, sees light or colour, hears sounds, feels hardness or heat, then z is a man". Metaphysics provides the proof of the necessary existence of immaterial thinking substances independent of bodies, substances in their own right; it provides a proof of the existence of purely extended things, possibly even of the particles of Cartesian physics; but it can provide neither passions, sensations, gross bodies, animals nor men. In the Meditations, in the Principles,

Descartes makes passions and sensations forms of thinking, and relates them to "thinking substance" (though, as I have indicated, he also relates them specifically to the union and not to the thinking substance). The doctrine of the "intimate union" seems to make it necessarily true that if x is a man, x is extended and x thinks (and it is when the Rational Soul is added to the Machine de Terre by God that we have a man and the first possibility of awareness and thought). And while this may not be very clear, what seems clear is that there is a contradiction involved of the central metaphysical "necessary truth", that the extended cannot think, nor can the thinking be extended.

I am not concerned to deny the facts, the gross empirical facts, of human states and activities which force us to note (a) how little importance self-conscious thought has in most of our activities, or (b) the way in which our thoughts, reflections, decidings, anticipatings, moral decisions, and sudden fears appear as our interfering with autonomous, non-reflective behaviour, or (c) that Descartes recognised these facts, sometimes very acutely. But a metaphysical dualism does not derive directly from such facts or any facts. It derives from special arguments, and in Descartes' case the arguments seem to arrive directly at a series of logical contradictories all of which must be affirmed. We are familiar enough with instances of

two things so related that they act as one in a way in which neither is capable of acting independently of the other, of things describable as composed of parts whose interrelated actions are different from those of the whole, but this is possible because we can identify the component things as parts, i.e. as related to each other within a system.

If the relation of minds and bodies were like this, then Descartes' claim would be intelligible enough that statements about minds, statements about bodies, and statements about men (unions) and ordinary things are (a) quite distinct from one another, so that no predicate of one could be a predicate of another, (b) equally true and clear and distinct, and (c) verified in different ways. But verification demands different types of knowledge in each case, different powers and exercises of such powers, and the only single agent that can verify all three types of statement is the "intimate union", the man. It is "man" which corresponds to the "we" of Cartesian discourse, the author and reader who discuss theories and arguments with regard to the structure and operations of man seeking information in a world.

2. What Descartes also seems to claim is that such types of statement cannot be related into a single system of statements because it is logically impossible for there to be such a relation between minds and bodies that the

union constitutes a single thing or substance. The claim is not made exactly in this form - it is rather that there must be minds and there must be bodies, and there must be a union, but while we can grasp each of these "truths" clearly and distinctly, it is impossible for us to understand how they can all be true. And the position seems to be that if science is to proceed at all we have to recognise that "man" is a subject for all three types of statement (that men can do metaphysics and physics as well as inspect the world around them) or we have to forget all about metaphysics and physics. At least for metaphysics, doing it "once in a lifetime" is adequate.

The claim in question is clearly made in a letter to Elizabeth of May 21, 1643,¹ and the subsequent assertion is rather astonishing even after a close acquaintance with Descartes. It can be presented in a single sentence, which reveals at the same time Elizabeth's difficulty: she has been completely convinced by the Metaphysics of the absolute distinction between mind and body, and can now not grasp the "union" at all.

"I have come to the conclusion that it is Meditation", writes Descartes, meaning by "Meditation" the application of his method for grasping the utter difference between soul

1. The second of that date.

and body essences, "which has caused you to find the notion of the union of soul and body obscure, rather than the thinking which requires less (close) attention; it seems to me that the human mind is incapable of conceiving very distinctly both the distinction between the soul and body and their union, at the same time, because in order to do that it would be necessary to conceive them as one thing, and yet to conceive them as two, which is a logical impossibility" - (ce que se contrarie).

This, I claim, when we consider the background of statements and arguments in the letters and elsewhere, amounts to asserting that in our familiar dealings with men and the world we see men, treat them as men, as organisms and as agents, just as we treat horses as horses, roses as coloured and scented flowers, and that we are right in so doing. In the realm of fact statements and experience of occurrences, there is no room for the metaphysical mind-body distinction at all, as there is no room for fact-statements in metaphysics. The metaphysical consideration establishes necessarily that mind and body are unutterably distinct, and for metaphysics it is necessarily true that mind and body cannot be related (unless this is a meta-metaphysical truth).

Somewhere between the realms of metaphysics and the realm of facts is matter for an argument (necessarily "occasion" as a verb equivalent to "cause" - the mystery valid, producing a necessary conclusion) that minds and better than this is a further question.

bodies must be intimately connected: I see my torn flesh (although the account of perception - the metaphysical "scientific" account - establishes that nothing like "torn flesh" can be seen, or really exist to be seen) and I feel pain, pain which is caused by, or occasioned in¹ me by, the tearing of the flesh (a causal relation which is inconceivable at the level of physics and mathematical extension, but clearly and distinctly grasped at the level of ordinary experience and ordinary speech).

I cannot regard what is said in the letters as either ad hoc supplementation or an aberration, since I find it involved in the whole Cartesian procedure. Further, I hold, if it can be proven "necessarily both p and q" and "p and q are incompatible", either one or both of the arguments is sadly astray; and here it is the doctrine of substance that must be considered if we are to find what has gone astray.

Put in a slightly different fashion, what is admitted is that mind statements and body statements are completely distinct from one another (along with the substances go their predicates and modes), and both are distinct from general fact-statements in the ordinary tongue - this last claim being maintained by many later scientists.

1. Doubts about whether Descartes was or was not an "occasionalist" seem to me have little ground. In general he uses "occasion" as a verb equivalent to "cause" - the mystery lies in the causal relation. Whether "occasionalism" was ever better than this is a further question.

Translation is impossible from the ordinary tongue to the scientific or metaphysical tongue and - as one consequence - minds and bodies, thinking and extended substances, cannot be said to exist in the same sense as each other, or in the same sense as that in which we say commonplace things, including men, exist. No human mind can (and if angels and God are in a better position to embrace contradictions, we can never know how they do so) grasp both the distinction between, and the intimate union of, mind and body, minds and bodies, or the relation between their modes of existence and the mode of existence of their union, namely man.

But in large part this is what Descartes, in spite of his stress upon "one science", upon the unity of mind, upon the singularity of its essential act, and the one-level sameness of ideas, was trying to prove from the beginning of his metaphysics. Senses deceive, mathematics and physics (imaginative conception) are almost certain, cogito-conception is absolutely certain; souls are eternal substances, matter is eternal substance, if not in the same sense that the souls are eternal or that God is eternal; ordinary things are not eternal (as things are not really what is, yet they are what is for the senses). Midway between what we sense (what seems to us to be) and what really is (particles in motion) are the forms of particular substances as primary-qualified

systems of moving particles, forms which come into being and cease to be as the structure of the particle system changes, except that in the case of man the soul (which is not experienced, and not qua soul observed at all) goes about its own incorporeal business when (as the senses inform us) the body ceases to function or (as science tells us) the fire goes out in the heart, or the structure of the particle-motions changes - and what the precise change is the human mind can never know. At best it can conceive of possible changes of position of related and moving imagined particles.

Such is the simplicity of the philosopher of the clear and the distinct, who introduced the doing of philosophy by considering one's own ideas and simple notions, and the writing of philosophy in the ordinary tongue. Let Descartes speak for himself at some length, and show how the Regulae doctrine lies throughout at the core of the exposition:

"(You) give me an opportunity to draw attention to the things I have omitted (in my explanation), the chief, it seems to me, being that having distinguished three kinds of ideas or primitive notions which are each known in their own particular fashion, and not by the comparison of one with the other, i.e. the notion we have of the soul, that of the body, and that of the intimate union between the soul and the body, I should explain the difference between these three kinds of notion and between the operations of the soul by which we have them, and state the means of making each of them easy and familiar (to grasp); next, having stated why I used weight as an (illustrative) comparison, I should make it clear that although one wishes to conceive the soul as material - and this is what conceiving its union with the body properly amounts to, one should not cease to recognise that it is separable from it.....

Firstly, then, I mention a great difference that there is between these three kinds of notion; the soul is conceived only by the pure understanding; the body, that is to say extension, shape and movement, can also be known by the understanding itself, but it is known much better by the understanding aided by the imagination; and finally those things which belong to the union of the soul and the body are known only obscurely by the understanding alone, only obscurely even by the understanding aided by the imagination, but they are known very clearly by the senses. It is because of this that those who never philosophise and use only their senses never doubt that the soul moves the body, and that the body acts on the soul, but they consider the one and the other as a single thing; that is to say, they conceive their union, for to conceive the union is to conceive them as one thing.¹

The metaphysical thoughts, which exercise the pure understanding, serve to make the notion of the soul familiar to us; and the study of mathematics, which exercises principally the imagination in the consideration of figures and movements, accustoms us to form very distinct notions of body; and finally, it is through ordinary experience and ordinary discourse only, while abstaining the imagination, that we learn to conceive the union of the soul and the body.²

If we revert to the first letter of the same date, we find the same pattern of repetition of earlier doctrines and a clearer indication of the failure to provide a relation between them.

1. Surely this is double-talk? Apart from the reification of the senses, which is more than a modus loquendi, those who never philosophise cannot grasp the notion of soul at all. They say "It hurt me and I hit it", "I felt afraid and I ran". Descartes credits them with saying "one thing acts on another thing and yet there is only one thing" - a riddle, not a sense-experience.

2. The stressed sentence is loosely translated: "c'est en usant seulement de la vie et des conversations ordinaires". Kemp Smith gives: "it is by relying exclusively on the activities and concerns of daily life" (D.P.W.p.274). The point is that what is familiarly (sensorily) experienced can be thought and spoken about, and Descartes defends the ordinary modes of speech as meaningful. If they were not, his claim as to the nature of thinking in all men would be nonsensical. We should have clarity only with a technical language.

"For there are two things in the human soul upon which depend all the knowledge we can have of its nature; one is that it thinks, and the other that, being united to the body, it can act and suffer with it. I have said almost nothing of this last (in my published writings) and paid attention to making the first only clearly understood, because my principal design was to prove the distinction which exists between mind and body, to which end only the first (thinking) was useful, and the other would have been harmful".

(My stress: "l'autre y aurait été nuisible". We have two pieces of evidence only about the soul, and one of them we ignore completely because it will not fit with the conclusion which we are determined to draw. Only thus do we generate a contradiction immediately - Descartes does not want to prove that the soul cannot think if it is united to the body).

"I shall here endeavour to explain the manner in which I conceive of the union of mind and body, and how mind has the force to move the body.

First, I consider that there are in us certain primitive notions, which are like the originals on the pattern of which we form all our other objects of awareness (connaissances), and there are very few of these notions. For after the most general notions of being, number, duration, etc., which apply to all that we are able to conceive, we have only for body in particular the notion of extension, from which follows that of figure and movement; and for the soul alone we have only that of thought, in which are included the perceptions¹ of the understanding and the inclinations of the will. Finally, for the soul and the body together, we have only that of their union, on which depends the notion of the force which the soul possesses to move the body, and the body to act on the soul, causing its sentiments and passions. ("ses sentiments et ses passions" - both sentiments and passions are bridge terms which enable sensations to be treated as activities of

1. perceptions. Presumably in "the strict sense". But this must be related somehow to what perceives when we sense. Are mere perceptions not "of the understanding" for Descartes?

attention and discrimination and yet as states of "soul"; it is by this means that secondary qualities are assimilated to pains which have no bodily location. I do not want to discuss the matter).

"I consider also that all genuine human knowledge (toute la science des hommes) consists in soundly distinguishing these notions, and not attributing any one of them to things to which they do not apply; for when we wish to explain some difficulty by means of a notion which does not belong to it, we cannot fail to be mistaken; as also when we wish to explain one of these notions by another, for, being primitive, each of them can only be understood by itself.

And in as much as the use of our senses has made the notions of extension, of shapes, and of movements, much more familiar to us than the others, the principal cause of our errors lies in our ordinarily wishing to make use of these notions for explaining things to which they do not belong, as when we wish to use the imagination to conceive the nature of the soul, or when we wish to conceive the way in which the soul moves the body by conceiving the way in which a body is moved by another body".

Known in different ways, yet all conceivable; a soul which can only be conceived and a body, a real body, which can only be sensed and imagined in a manner quite different from that in which mathematical figures and motions are imagined; yet soul and body somehow "grasped" as related by a notion that amounts to "are united so that one affects the other in a way neither conceivable nor imaginable".

If these are not contradictions, what could be? And finally, two paragraphs from the second letter:

"But when Your Highness remarks that it is easier to attribute matter and extension to the soul than to attribute the capacity to it of moving a body and of being moved while not being material, I beg her to attribute this matter and this extension to the soul quite freely, for doing this is only to conceive it as united to the body, and after having conceived it thus and having well experienced the union in herself, it will be easy to consider that the matter she has attributed to this thought is not the thought itself, and that the extension of this matter is quite different in nature from the extension of this thought, in that the

first is determined at a certain place from which it excludes all other bodily extension, which is not the case with the second; and thus Your Highness can return easily to the knowledge of the distinction of the soul and the body notwithstanding that she has conceived their union.

Finally, I think that it is very necessary to have thoroughly understood once in one's life the principles of metaphysics because it is those which give us knowledge of God and of our soul, and I think also it would be extremely harmful to busy the understanding with meditating about them, because we could not then attend (as we should) to the functions of the imagination and the senses; the best thing we can do is to hold in memory and belief the conclusions once drawn, and to employ the rest of the time we have studying those thoughts in which the understanding acts with the imagination and the senses".

Again the stress above is mine - we switch suddenly from the soul to la pensée, from the substance which thinks to the substance which thought is, i.e. the thought-substance which contrasts with extended-substance. And after these several pages of contradictories which seem to result in the assertion that so far as science is concerned it is what is familiarly experienced and described, including the human beings we always experience ourselves as being when we "do not philosophise", that merits our attention, what is the philosophical problem we are left with?

It is scarcely that of finding Descartes' solution, since it is apparent that he has none. We could, presumably, follow Kierkegaard and the Existentialists, claiming to have found the essence of mind as "incapacity of resolving necessary contradictions," and searching for "abysses" across which we "see" a God who proves his own existence by contradicting himself. If, however, we are interested in philosophy, we can ignore "souls" and say,

rather like Descartes, "We think, we can think, so let us go on thinking; we can investigate, so let us go on investigating". But we have then to discover the connection (or the disconnection) between facts, science and metaphysics, to establish them as specifically connected or as completely separate from one another - in which case, I claim, metaphysics and science are at best phantasies, and of interest to psychologists and philosophers of mind. If, instead of ignoring "souls or minds", we take seriously what is said of them, we are confronted with the problem of a soul or mind which conceives (metaphysically), imaginatively conceives (scientifically) and sensorily observes (factually, familiarly, empirically); and we are threatened with the paradox of "the mind is one and the mind is at least three" - ce que se contrarie.

If we make what seems to be the obvious move and say: "There is one mind, one thing, one substance, which conceives, imagines and senses, activities which are completely distinct from one another, and all we can say about the mind is that it acts in these different ways", then we must at least face these questions, all of which an Aristotelian must ask: "I admit it to be true that men do metaphysics and science, and chatter about a familiar world in which men have arms and legs and brains, eyes and mouths and a variety of organs, are emotional and angry and ingeniously constructive and inquisitive, like animals in some ways, unlike plants in that they are alive and grow and are nourished, and unlike granite

and sand particles except that they occupy space-time and resist pressure, can be chemically analysed. When you say that minds conceive, imagine and sense, if you are saying that men do not really do these things, what sort of thing is it that so conceives and imagines and senses? Who and what are you who "knows" conceiving and imagining and sensing in a way that is none of these, since its objects are all of these? The argument from "conceiving occurs" to "there is a conceiving-thing", from "imagining occurs" to "there is an imagining-thing", and from "sensing occurs" to "there is a sensing-thing", cannot justify a claim of one thing which acts in these three ways if no connection can be shown between the activities. Surely Descartes' proof in the Cogito and its development depends upon all such activities being species of a genus and successive acts of the same thing, at least; and if difference is the essential relation between the activities surely this demands essentially different agents?"

Again we approach ce que se contrarie in Descartes, though years and many pages may separate the explicit formulation of the contradictory assertions. "There is one essential and self-same act which the mind "knows" itself in and as performing, which is thinking, perception, intuitus; "thinking" is a generic term for the class of acts which includes perceiving, willing, loving, desiring, conceiving, doubting, etc....and some of these are absolutely distinct from one another and are not "knowable" by one mind or as one mind's

activities, unless there is one special and yet different act of mind which enables the mind to observe all of them as acts of that of which it too is an act. Imagining cannot be observed or conceived; conceiving cannot be imagined or sensed; sensing cannot be imagined or conceived".

The strength of the Aristotelian position, as indicated by the questions above, is that its implied assertions are clearly intelligible and are verifiable by determined and determinable techniques. The reply to the charge that the assertions do not explain how men think is that explanation is meaningless unless what is to be explained is a true proposition, and the stated truth is not intended to be its own true explanation. "p explains p" is a logical phantasm. The reply to the charge that "men think" is not necessarily true is simply to admit that it, and its fellow fact-statements, are not so true, and to assert further that no propositions are necessarily true except in the sense that we speak of r as necessarily true when we claim it to be guaranteed by p and q, themselves "merely" true. The Aristotelian interest in the Cartesian position is metaphysico-logical; it is not concerned especially with the question of what minds and bodies are really like, it being assumed that there are minds and there are bodies, but with the reasoning process involved in inferring substance-agent-things from observed acts, in contrast with the observing of things acting. It must be specially interested in the inferring of agents from classes

of acts - "thinkings occur" in Descartes' generic sense - or from an act whose object is a class of acts or possible acts - "I think now that I do or can think", where "do" and "can" indicate not specific acts but "potentialities".

As "potential thinkings" they are treated by Descartes as showing "mind or soul" to be, like "this wax", "potentially a variety of forms", but as potential acts of an agent they raise the question of what is involved in all our discourse in which we say that A, which acts in manner B at this place and time, and in manner C at that place and time, is the same A, or that A which here and now has different features from those it had then and there is the same A. I say "involved in" because the inferring of agents (that it was Tom who, that it was the cow which, broke the gate) and the use of "same" (this same Tom, this same cow) are not, as such, to be questioned; all of our discourse depends upon the latter, which appears in its strongest form in our terming the infant born after a foetal development and the man who died as a mature, ugly, much loved and much hated philosopher the one and same and only Socrates.

Here we can follow philosophical discussions of "personal identity" through paths and by-paths; we can follow Hegel with his dialectic or others with their many pages on identity in difference; or we can study the Cartesian re-assertion of the pre-Aristotelian conviction that A at p^1t^1 and A at p^2t^2 can be the same A only if A "contains" an identical and unchanging A-thing, a substance, a substratum, a matter or stuff-essence, whether A be man or mind or body. This last is what I propose

to do, believing that Aristotle did reject, and correctly rejected, the "necessary" self-identical stuffs and substances and subjects which distort philosophy and science and forever bar them from logical relation with fact statements which, as truths of the familiar historical world, are inevitably "about" things which are complex and changing, and stuffs which are complex and changing (at least when we study them seriously).

Aristotle seems to me to have realised that formal principles are formal, and related to fact statements by their being formal; Descartes seems to follow interpreters of Aristotle in declaring formal principles to be material or factual, and having to be related to fact statements, though the relation is eternally evasive. In clarifying the logic of substance, and in considering Descartes' metaphysical arguments in detail, we come to understand why Descartes was convinced that "there are minds" and "there are bodies" and "minds are related to bodies" are "extraordinary" truths, and why, on his own argument, they could never be "ordinary" truths.

Substance and Subject.

So far we have made as little mention of a source of Descartes' necessary truths, a source of a principle which underlies all his arguments, as Descartes does in the Meditations. Many statements have been made, and their relations argued about, but Cartesian metaphysics stems not so much from the relations between statements as from the analysis of statements or propositions, i.e. what is stated to be so. In a sense the dualism comes also from an account of statements, together with an analysis, the statements being denominated "thoughts". We might present the case loosely in this fashion: Thoughts are ontologically distinct from things thought about, "the horse is black" from the black horse (which we can ride). Analysis of "the horse is black" produces entities called "ideas"; but no corresponding analysis of the black horse is possible. Nor have we horses in mind. "Horse" appears in mind, in thought, as the thing to which the properties or attributes are "applied" - or "intimately united"; literal relational terms are as difficult to find here as in the case of all metaphysical entities. A sentence has five different words for five different properties, each different from the word for the thing which is the subject, and which is not a horse or "horse" because it is distinct from the properties. "Horse" corresponds to the whole sentence, whose subject is

an uncharacterised "thing" or "substance" or "subject". But if our thoughts are to be of anything, our statements are to be meaningful, the horse must somehow correspond to, be represented by, the complex sentence or statement or thought.

Descartes' position is somewhat different from that of philosophers who have wanted to say something like: "A sentence is a big linguistic unit made up of little linguistic units", or "A judgment is a big thought-unit made up of little thought units, a complex idea made up of little ideas, a big meaning made up of little meanings", although the doctrine of simple ideas reduces to something like such a position. He is not prepared to run counter to his mentors and deny predication outright, converting it to a simple relation of "addition". Hence he seems to claim that analysis of thoughts presents us with attribute terms or ideas attached to "thing" or ingredients in "horse", i.e. in "thing which is black, quadruped, animal, etc.". But the argument, it seems, must run: If thoughts are to be of horses, then horses must be like this, must be composites of thing-substance and attributes. The subject of all statements, of all thoughts, qua idea, is "thing"; the subject of all attributes, which sustains them, is thing or substance. It is thing or substance which exists, persists, is one, and is related existentially to other things or substances. There is a metaphysical relation between occurrent attributes and the substance to which they adhere

(thing) or the substance in which they inhere (horse). And at this point predication must disappear. (We can, according to Berkeley, ride complex ideas, but not propositions).

If we accept the argument as meaningful, the consequences are extensive - how extensive we shall see as we proceed. It seems to follow directly that substances (and their existence) can never be perceived. This Descartes claims. It also follows that there is no distinction between any one substance-subject and any other. This Descartes denies, though he professes to admit only two substance-subjects. Almost all post-Cartesian philosophy can be characterised as accepting the first consequence, the Cartesian denial of the second, and refusing to consider the logical doctrine which gives rise to the consequences.

The logical distinction of subject and predicate can obviously be made throughout what I have said and quoted above, as it can be made in the case of any assertion in a familiar language. The identification of subject and substance or thing demands that we consider a sub-class of intelligible statements, a sub-class of propositions, but no more than this; such will be the argument below. Anticipating argument and conclusion, I state in summary form what I suggest is the logical role of "substance" as subject. If I am correct, all of Descartes' doctrines can be given a meaning, the world is not completely transformed by a consideration of what we discover it to be,

and none of the metaphysical consequences of the doctrine which, it must be stressed, Descartes takes over unquestioned from his predecessors, in fact follow. We lose thereby a number of necessary truths and metaphysical arguments, but we lose also a number of necessary contradictions; we lose an easy way to science, but are able to claim that fact statements may be true and scientific statements meaningful in relation to the world of which fact statements and in which fact statements can be made.

(1) "Subject" is meaningless except as a correlative of "predicate", and is a logical term.

(There are many uses, directly and indirectly related to this use, perhaps independent of this use. Subject of discussion, of a thesis, of experiment, of a country, of an indignity....these uses are valid and important, but we are not denying them in asserting a technical use in logic).

(2) The term is useful, and fundamental to a science of logic which is concerned with common features and relations of propositions.

(3) Our only way of talking about things is propositional and in a familiar language. The only things we encounter are things of a kind related to other things of a similar and of different kinds; and there are many kinds of relation between things of the same and of different kinds.

(4) Propositions whose predicates are quality-terms determine, and are determined by, systems of classification of things.

(5) If we accept the technical word "term" for subject and for predicate in a proposition, then there may be intelligible questions to be raised of the relation between terms, words, ideas and occurrences or things. But these are not questions to be answered by reference to a logical analysis of propositions.

(6) The logic of subject-predicate is concerned with the examination of fact statements in a familiar language, and within propositions the distinction of subject and predicate is an initial logical distinction which can be

demonstrated directly. We have neither discovered nor created a new "thing" when we have learned that the subject of "Socrates is wise" is "Socrates", that the predicate in the proposition is "wise". Nor are we confronted with the problem of discovering how a predicate is related to a subject, an attribute to a substance, or wisdom to Socrates.

The following statements are equivalent to Descartes' central and often repeated logical principles:

(a) If x is a substance-term (a subject) it is the subject of a proposition which contains at least one predicate term. Such a proposition can be stated with any common noun in a language as subject, and hence with any proper noun which names an individual of a recognised kind. (If there are nouns to be rejected from a language, as we might wish to reject phlogiston, Mumba Jumba, or fairies from our language - or from a class of subjects of fact statements in our language - the rejection will be on non-logical (though not illogical) grounds.

(b) If p is a fact statement, and " x " is the subject, then " x " will not only be a possible subject for a quality classificatory statement which declares that x is a kind of thing, but it will also be a possible subject for a statement of a relation between x and y , where " y " can be a subject of a quality-classificatory proposition.

This is what is meant by saying that substances exist independently of one another. But unless we understand the technical terms as relating to propositions which have real terms, statements about actual things with actual qualities and actual relations, we have failed to grasp the meaning of the technical terms, which do not replace ordinary language terms. Without attempting a justification, I point out that of any familiar thing a number of classificatory or quality statements can be made, and a number of relation statements can be made. I shall attempt later to show that this is entailed by "the thing in question is classifiable" or by "this kind of thing can be named by a common noun in our language".

(c) Any sentence whose grammatical subject is a common noun and which is used to make a true statement entails a non-specific or a specific existential claim on the part of the thing or things indicated by the use of the common noun. If " x " is such a subject-substance, then it may be said that x exists; but this is equivalent to (b) in that to say " x exists" is to say " x is somewhere and somewhen", and this is equivalent to saying " x is spatio-temporally related to other kinds of thing".

I am not laying down the conditions of there being a world of a particular kind or a language of a particular kind, except in the sense that I am asserting actual features of a familiar language used of and in a familiar world. That I am prepared to commit myself to answers to questions about possible worlds and possible languages which can be related to the familiar world by means of our familiar language, and that I can give no meaning to possible languages and possible worlds not so to be related, are further questions.

To many metaphysicians, and logicians, the summary above will seem unduly restrictive. I am not denying that it can be expanded, but asserting it as a minimal condition of there being a subject-predicate logic in the established, if sometimes maltreated, sense of "subject-predicate" and of "logic".

I want further to claim that logical statements, i.e. statements in logic, which employ the terms "subject" and "predicate" are statements about statements about things, statements about fact statements or propositions, and that this whole statement is not itself a logical statement. It is a statement about the nature of logical statements, or about the relation between logical statements about fact statements and those fact statements. Thus I must argue (a) that fact statements can be made in a language whose use and criteria for truth and falsity and meaningfulness

are determined prior to any formulation of logical distinctions and logical statements, although the fact statements have logical features and admit of the distinctions and logical statements in question; (b) that the formulation of such logical distinctions and statements neither displaces nor amplifies fact statements as fact statements; and (c) statements about logical statements neither displace nor amplify fact statements, and are meaningless unless fact statements are meaningful and true.

The importance which attaches to this rather complicated formulation of what otherwise appears obvious is that it runs counter to what seems implied by Descartes' logic of system, his metaphysic, and later theories of hypothetico-deductive systems. Admitting an apparent over-simplification in stressing three "levels", what I am asserting is that given fact statements and arguments we can proceed to statements about kinds of statements and validity of arguments, to logical theory and to formalisation and consideration of such theory. At a certain stage we can "order" in reverse, presenting statements about the theory, the theory, and then the propositions with which we began; and our first "principle" might well be "At the most general level of logic, and considered only in relation to truth-falsity, all propositions are of the subject-predicate form". Because we have been up the ladder, we can introduce statements involving variables, and proceed to statements in which values of variables appear.

The opposite thesis is rather that we can begin with the most general statements, with rules for the use of variables, without having either variables or a use for "variable", and then can proceed to "invent" variables and finally to "invent" instances for the variables and achieve a language. And having achieved a language, the difficulty is only to find a world to talk about. If the "harmony" is pre-established, we have one; if not, we have to try and do as Descartes is forced to do, infer or deduce one. On the opposite thesis, there is no disharmony.

To meet a Cartesian objection that logic or metaphysics has to do with thoughts and not with statements in words, all that it is necessary to do is to write "thoughts" instead of "statements" above. There is no need to alter any statement made about propositions, since these can be treated directly as "what is said" or "what is thought". We find Descartes himself using pronunciatum as what is said or thought in Meditation II.

It is quite open to a metaphysician to claim that in talking about substances and attributes, universals and relations, he is not making statements about logical statements about fact statements. With such a claim I have (except indirectly) nothing to do here. What I am asserting is that if subject-predicate distinctions and substance-attribute distinctions are logical distinctions,

then such statements as "there are subjects" and "there are substances" are quite different in kind from statements like "there are bears" and "there are beavers"; and I am denying that any logical analysis of "bears are animals which eat honey and live in caves" will prove that there are really no bears, or that bears are only collections of attributes, or that there is something in a bear which holds the attributes together. As with "there are only universals", confused logic is mistaken for ontology. Later we can give a meaning to the statement that the "world" has a metaphysical structure.

In very brief summary:

- (a) If x is a substance, " x " is the subject of a fact statement in which x is asserted to be of a kind.
- (b) Nothing can be a substance term which has no attributes. (This is a version of a central Cartesian principle: it reduces to "Nothing can be said of that of which nothing can be said". Its converse is "If anything can be said of something it can be said of something").
- (c) If x is a substance, then it may be said that x exists, is somewhere and somewhen, and is spatio-temporally related to other things. Dating is possible for any individual x .
- (d) If it cannot be said that x exists, then x is not a substance.

(d) may appear to insist on a distinction between subject and substance; but all that it admits is that there may be statements which are not fact-statements. It is not denied that there are fictional statements as well as logical statements which can be meaningfully made. I have delimited a class of statements, not provided a definition in a

Russellian or Cartesian sense; or, it might be said, I have offered a definition of "substance" in terms of undefined concepts, e.g. "true" and "fact-statement".

The last is not strictly true, since "fact statement" has a variety of uses which demand further consideration.

2. How does this general position connect with the problem of dualism as we have considered it above?

(i) Mind, or thinking substance, if minds are things, if "mind" is a common noun, satisfies (a). It is the subject of a set of statements whose verbs are species of the verb "to think" in Descartes' generic sense, and these species are ordinary language uses.

(All specific verbs here have objects, and the range of objects is complicated; we have difficulties when Descartes introduces special uses of "sense"; we have further difficulty when we consider "thinking" as a differentia correlative with "extension". But we are considering how Descartes uses the word "mind" here).

(ii) Body, or extended substance, if bodies are things, if "bodies" is a common noun, satisfies (a). "Body" is the subject of statements whose predicates are "extended" and "moves" (and again there are later difficulties).

(iii) Both "mind" and "body", if they admit of plurals, satisfy (b), (c) and (d).

And, as I have argued, we have no problem of dualism - we simply have two kinds of thing-substances in the same world, and their relations are spatio-temporal. There is not even a problem with "sensing" - all we have to

do is to give it a meaning such that "minds" could do it, and to that end we need deny only that things are sensed and assert that sensations or sense-data are sensed and have no relation to bodies. If what the minds think happens to coincide with what is true of the extended world, this is interesting,¹ but it makes no more difference to minds or to extensions than does the failure of the thoughts to coincide with anything in the extended world. As long as we keep outside, there are no problems here for us or for minds.

(iv) But if there are statements which can be made of "men", i.e. statements of sensing, of passion and emotion, of feeling pain and hunger, then man satisfies all the criteria for being a substance.

Why should this give rise to problems? It is apparent enough that in any of the languages with which Descartes was concerned, as in English, it is possible to speak of "man" as doing or suffering all that is in question.

A proposition with "man" as subject and the predicates mentioned can be stated in each of several mutually translatable languages. It is also apparent that in any of the languages it is possible for any man to refer to himself as an Englishman does by using "I"; and any man can (must, on Descartes' view) admit the Cogito

1. To us, or to God. The illustrative examples

as an argument, admit that he can doubt, cannot doubt that he doubts in doubting, can think that he thinks and cannot deny that he thinks, if he speaks the language in which these arguments can be presented.

There is, strictly, no problem here that arises from the purely logical doctrine of substance-attribute. "Man", like "mind" or "body", can be said to be of a kind, to exist, and to be spatio-temporally related to other substances, i.e. admits of relation statements. That two substances are related in such a way that they constitute a third substance presents no logical difficulty - unless we have "created" a logical relation between the two substances such that no empirical, no actual, relation between them is possible such that they can combine in the way required. "Man" and "car" satisfy the criteria for being substance-terms, and statements can be made about "man-driven-car" which cannot be made about the man alone or the car alone. We accept fact statements about hearts and lungs as well as about men; we accept statements about batteries as well as torches; and with our attention directed to these different situations we may well feel that important distinctions are being over-ridden by talking about substances or subjects at all.

But when we discover complications and investigate, we use common nouns and fact statements, and the logical distinctions still apply. The illustrative examples

above employ terms as subjects which satisfy the logical requirements, and provided that we have some notion of a relation, perhaps not very specific and certainly non-logical unless it is a vague version of "parts of a whole", which I shall argue presents us with special logical problems, between an x and a y which we can describe independently of one another, we can grasp the combination of x and y into a composite unit. We can grasp that they are combined and ask how they are combined, with some hope of finding an answer if we can discover relevant facts.¹ What must be insisted upon is that no logical analysis of a statement that Z acts in a certain way will enable us to say "Z is a system of X and Y"; no logical analysis will enable us to say "X and Y are so related that Z does so act" even if we also know that X and Y are the only things present in Z. On the other hand, we are familiar with substance-subjects of which it can be said that they are structured and how they are structured - hence most of our empirical science.

(It is vital here to note a distinction which will trouble us for many pages, that troubles Descartes throughout. When we think of "substance" in connection with actual and investigable human bodies, we think of flesh and blood and bone, not of "things" like hearts and lungs and hands and eyes.

"We must think of the force (vis) by which we are properly said to know things as being purely spiritual,

1. Not, obviously, if x and y are "concepts".

and no less distinct from the whole body than blood is from bone, or a hand from an eye", writes Descartes, in Regula XII. The sense in which we speak of "blood" and "bone" as substances is not the sense in which we speak of "hands" and "eyes" as substances - we do not accept statements like "x is made of hand", "x is made of eye". This distinction is roughly between "thing" and "stuff", which is not not a distinction already included in the substance-attribute distinction. The relation between "thing", "stuff" and "structure" will concern us for a chapter and more below. It is apparent enough that in the case of a multitude of familiar things, being a thing is not incompatible with being structured, and even being of many stuffs. (Simples are hard to find.)

(v) To the statements made above about "man" as subject of types of predicate, Descartes adds: Man is an intimate union, is so from birth, experiences himself as such, and prior to death no man is other than an intimate union. Hence he seems to maintain that all statements with "man" as subject regarded as meaningful and true in ordinary circumstances, and having predicates like "senses", "feels", "is angry with", etc., are actually meaningful and true.

If this is so, then he can argue that "mind" and "body" must be united to make an agent because there is an agent made of mind and body. But the statement that mind and body are substances united to form a substance is not a logical statement; it is a fact statement about substances as things. We are presented with logical problems because the same predicates are assertable in ordinary discourse of "man" as Descartes asserts of "mind" and of "body", while it seems equally assertable that what is predicated of "mind" by Descartes, namely that it is unextended, cannot be meaningfully asserted of man at all. Descartes seems

to be forced to argue that if man is extended, then man cannot be said to think, while in general usage "x is not extended" entails "x is not a man".

The further puzzle is part logical - it is intelligible to ask "What are the minds like which do this thinking?", and completely unintelligible to ask how these minds are related to bodies of any kind until we have been given an answer. The insistence that minds can only be conceived demands that we give an account of a relation between a concept in one field and an encountered body in another field; the insistence that bodies too are concepts removes the question from the empirical realm and leaves it to the conceiver to explain what he is talking about.

That Descartes has these difficulties forced upon him is evident in the letters to Elizabeth, as I showed above. What he seems to attempt to show elsewhere is:

(a) That all we can ever say of mind is that it thinks, is not extended, and is completely different from body - which leads inevitably to a stuff sense, i.e. nothing made of body could think. When it does so lead, the "relation" is ignored, and mind tends to become a system of thoughts and ideas, rather than a thing which thinks. Mind is what man is said to do, or what results from man's doing.

(b) That all statements about man can be reduced by scientific investigation to statements about minds and their thoughts and statements about the complex structures and movements of bodies and parts of bodies, i.e. physics-physiology and introspective reports exhaust what can be said of what is unscientifically labelled "man". Descartes was frustrated in all of his attempts to extend physics into biology.

Further, he is at least consistent in stating as a central metaphysical truth

(c) that no substances can be directly known, and all substances are inferred (if infallibly) from encountered attributes.

None of these statements are logical statements; and all involve fact-assertions and scientific claims.

(c) demands a new logical thesis regarding substance, a new analysis of propositions, which Descartes uses to establish the reduction of "man" to "mind and body" - although, I shall argue, it establishes nothing of the kind. What it demands is the surrender of all the common nouns in the language being used, and the insistence that "thing" is the only substance-term required. But it also requires that we should treat all attribute-terms as substance terms, and predication as a relation.

Chapter V.

The Major Path to Thinking Substance.

The Cogito is widely accepted, misunderstood and "interpreted".

"Ego Cogito, ergo Ego Sum", in appropriate translation, is intelligible to all thinkers, holds of all thinkers, and need worry no one. But it worries Descartes. It is obvious in the Regulae, repeated in the Discourse, the Meditations, the Principles, but as Descartes proceeds arguments and more arguments seem to be called for.

(p.154). The primary argument is in terms of cogito as a verb, of thinking as the act of an agent. But what is true or false is a thought, not an act. What we have to do is to unravel the confusions of "I think p", "p is true", and "a thought is in my mind", and relates these to the Cogito arguments.

The Cogito is complex, confused and vacuous.

2. (p.172). The argument above is developed to show that "I am certain only that I am a thinking thing" is not equivalent to "I am certain I am only a thinking thing" (Gassendi's point), and leads on to the question Descartes himself has to ask: "What am I who thinks?"

Descartes' rejection of "I am a man" is neither justified nor is it the real basis of the argument, which depends upon "substance" as inferred subject and "thinking" as a necessary (principal) attribute.

The implications of "principal attribute" must be considered later. We lead on to a study of how Cogito as act becomes Cogitatio as object in Descartes' arguments: the essence of mind is no longer act or power of thinking, but thought.

(We consider thought in the next chapter. It will later be argued that is is thought which, in contrast with bodies, is Descartes' mental, immaterial and unextended substance qua stuff. But before this can be discussed we need to study the "mental atomism" of the doctrine of "simple notions" which begins in the Regulae and is never surrendered).

"Are not we men made up of body and soul?"

There is nothing else, he replied.

.....

"The lovers of knowledge know that when philosophy receives the soul, she is fast bound in the body, and fastened to it: she is unable to contemplate what is, by herself, or except through the bars of her prison-house, the body; and she is wallowing in utter ignorance. And philosophy sees that the dreadful thing about the imprisonment is that it is caused by lust, and that the captive herself is an accomplice in her own captivity. The lovers of knowledge, I repeat, know that philosophy takes the soul when she is in this condition, and gently encourages her, and strives to release her from her captivity, showing her that the perceptions of the eye, and the ear, and the other senses, are full of deceit, and persuading her to stand aloof from the senses, and to use them only when she must, and exhorting her to rally and gather herself together, and to trust only to herself, and to the real existence which she in her own self apprehends; and to believe that nothing which is subject to change, and which she perceives by other faculties, has any truth, for such things are visible and sensible, while what she herself sees is apprehended by reason and invisible".

Socrates, in the Phaedo (Church).

"What kind of thing is liable to suffer dispersion, and for what kind of thing have we to fear dispersion?..."

Now is it not the compound and composite which is naturally liable to be dissolved in the same way in which it was compounded? And is not what is uncompounded alone not liable to dissolution, if anything is not?

Ibid.

"Aujourd'hui donc que fort à propos pour ce dessein j'ai délivré mon esprit de toutes sortes de soin, que par bonheur je ne me sens agité d'aucunes passions....."

Descartes. Meditation I.

"One is One and all alone, and ever more shall be so".

An Old Song.

Chapter V.

The Major Path to Thinking Substance.

1911.

1911. 1911. 1911.

"One is not and all alone, and ever more shall be so."

1911. 1911. 1911.

The Major Path to Thinking Substance.

In the preceding chapters I argued that there was no problem of dualism if there were unextended thinking things scattered through a world of extended particles, and that Descartes, whatever his necessary proofs of such a state of affairs, was both concerned with the familiar world and able to prove that minds and extended substances of a certain kind or form were intimately united and, as intimately united, constituted a special but single substance. Stress was laid on the letters to Elizabeth in indicating the difficulty of finding a place for "man" in the realm of necessary truths, and hence in metaphysics, and a number of "minor" writings were also mentioned. But it remains true that philosophers have in general paid little critical attention to those writings, while devoting attention at length to the Discourse and to the Meditations. It is there that the main argument for the independent substantiality of minds and bodies is presented, and it is from these that that the main estimation of Descartes derives.

The straightforward argument to "thinking substance", intended to apply to all "mental phenomena", to which attention is directed, is the famous Cogito. It is widely accepted, as widely misunderstood (on Descartes' own admission it does not amount to "Cogito, ergo unextended minds exist"), and as widely "interpreted" in various ways. What Descartes seems to do is to prove that he, Descartes, exists whenever he thinks that he and certainly followed that I was", produces the conclusion

thinks and exists, a "fact" that he regards as simply and obviously the case in the Regulae and the Principles, and he draws the conclusion that a thinking thing exists, that he exists as a thinking thing, a thinking substance.

Why should we, why should anyone, want to challenge the assertion that Descartes does (or did) think, or the existential claim that goes along with the fact statement that Descartes exists (or existed) whenever he thinks (or thought), or the yet different claim that if he did not think he could not think that he existed? Ego Cogito entails Ego Sum. "He is thinking" entails "he exists". If you are thinking, then you too exist. The Cogito is unassailable, in many modes, in any language with words for "I", for "think" and for "exist", for anyone who can utter the Cogito.

Why then is Descartes so concerned? For concerned he is. In the Regulae the truth of the Cogito is so plain that it requires only indication; the Discourse is more elaborate, and produces the curious argument in Part IV that "if I had only ceased to think, although all the other objects which I had ever imagined had been in reality existent, I would have no reason to believe that I existed" - the stress is mine to show the nub of the argument; and this, together with "I could suppose that I had no body, and that there was no world or place where I might be, but I could not therefore suppose that I was not", and with "from the very circumstance that I thought to doubt the truth of other things, it most clearly and certainly followed that I was", produces the conclusion

"that I was a substance whose whole essence or nature consists only in thinking, and which, that it may exist, has need of no place, nor is dependent on any material thing, so that "I", that is to say the mind by which I am what I am,¹ is wholly distinct from body, and is even more easily known than the latter, and is such, that although the latter were not, it would still continue to be all that it is".

In the Meditations the stress is on "cannot be doubted", the doubt is specifically labelled "metaphysical", and the method of doubt seems designed to show as a practical impossibility what has already been established as a logical impossibility, "no one can doubt that he doubts when he doubts". The Principles repeats the intuited obviousness, the doubt-impossibility. Yet we find in the Meditations, and in the

1. What can "by which I am what I am" mean here but "if I did not have a mind I would not be the kind of thing that I am, i.e. a thing with a mind?" The point is the "substance whose essence or nature lies wholly in thinking". What Descartes is doing illustrates his odd treatment of "principal attributes", of which every thing has one. He converts "if a thing lacks the attribute X it is not a Y" into "if a Y lacks (or loses) the attribute X it does not exist (or ceases to exist)". If by man we mean a "thinking thing", then when a man ceases to think he ceases to be a man - an awkward expression only when we refuse to say "the man died and became a corpse".

We can recognise here that "acting" or "doing" is different from having a "quality" - and that what troubles us is that "no longer thinks" is taken to mean that something else has happened as well to the man. Descartes hopes to prove the immortality of the soul by proving that souls have only one attribute, "thinking", and that it is meaningless to say that that could lose it, while nothing else could conceivably happen to a soul.

What further must concern us is that if thinking is not what I do but a process going on in me, to say that thinking has ceased is to say that the process is no longer going on in me. Process raises special problems of substance; and so does the attempt to treat thought as act of me and process in me.

Principles, quite a battery of further arguments still apparently designed to prove that Descartes is a thinking substance.

Almost at times one suspects that Descartes was not quite sure that although "doubting" was a species of thinking it was equivalent to both "think not" and "not think", was not quite sure that "thinking not" and "cannot think that not" were the same as "not thinking" and "cannot not think".

There is a reason for the uncertainty: the Cogito provides an answer to Descartes' search for metaphysical certainty in the form of an indubitable truth with an existential entailment on the part of the subject, and this entailment brings the truth into line with ordinary fact statements; yet it is denied that any further positive assertion can be made about the subject, that any further description of it can be given, and this is not true of any other fact statement with an individual subject.

The argument to the Cogito is in the familiar tongue, and as such would be admitted by anyone who understood it. But there is reason apparent for saying that "I think" is a special kind of proposition, even perhaps for saying that it is a metaphysical one, reached by a special method of metaphysical philosophising. Indeed, metaphysics appears as a science completely stated with the one proposition so attained. Yet for the ordinary user of "I" and "think", the statement "I think" is a universal one in the sense that

any thinker can think or utter it, and it is merely ludicrous to say that "I think" is the only thought I can think, or the only statement that I can make, which is true of me, i.e. is true and has "I" as subject. It is as ludicrous as the statement that all that can be said about cows and giraffes is that they are extended.

Both "I" and "think" in fact "expand" in a variety of ways. Unless it is possible to expand "I think" the proposition is useless to Descartes; if it expands as the Dubito contracted it, it expands into "I am a man who is sometimes deceived by his senses, who sometimes thinks cows are horses, that bushes are bears, a man who can suppose that he is not bodily and can argue from this that he is thinking all the time he is supposing and making false judgments or invalid inferences"; it must be allowed to expand in a restricted way if it is to produce the results which Descartes has decided that it is to produce, the proofs that what Descartes knows to be true is necessarily true.

It is easy to insist too much on Descartes' religious convictions, but the Meditations were advertised as proving that God exists, that souls are immaterial and immortal; these beliefs are not prejudices for Descartes, because they are known to be true, atheists who doubt them must be wrong. The argument produced is to be the final refutation of all atheistical arguments - without any consideration of them - and it is not in the least dubitable that the body is left behind at death. For Descartes "I am a soul that

possesses a body and leaves it at death" is a literal mode of speech, and this is why he can simply reject "I am a man" from any consideration whatever while he is doing metaphysics in the ordinary tongue. The reason why the Meditations appeared in Latin is not that Latin enables one to say things that cannot be said in French, but that caviar is not for the general. We shall see below the general effect of the method of establishing that true propositions are necessarily true, and of the setting up of the method as the essence of science.

"I think" is not, in isolation, a necessary truth - if we can regard it as a "thought" at all. Any isolated thought qua thinking is purely contingent, like any other particular act. Necessity appears only when the question of truth or falsity appears, as when someone challenges the statement "I think" made by Descartes or by someone else. It is difficult to phrase this - and hence part of the convincingness of the Cogito - but we can put it this way: an act cannot be true or false, though an assertion that an act did occur or is occurring may be true or false according as the act in question did or not occur.

There are many interpretations of the Cogito, many explanations of what it really means. But as it is presented in the Meditations "I think" states something that I do - it is an act, and dateable, admitting the adverbial modifier "whenever". It is an act correlative with "Descartes thinks", "Descartes thought", "Descartes is thinking", and (although

I profess to be familiar with a number of the difficulties of this verb-use of "to think") I want to consider the argument first of all only in these terms, i.e. in Descartes' own terms. His goal is to justify the replacement of "men" in "men think" by "minds", i.e. to justify "minds think".

What can be true or false is the statement that an act occurred, that an act is occurring; and "thinking" requires an object, something must be thought to be so, if it is to occur as an act. What can be true or false, if p is the object, is p . I shall use the symbol P below to indicate the class of thought-objects that may be true or false, and use p or the expression "value of P " to mean a specific and expressed or stated or formulated thought. What I want to avoid and to illustrate is the systematic ambiguity by which "a thought" is treated both as what can be true or false and as something that occurs at a particular time. What occurs or is dateable is "thinking that p ", not p ; thinking a value of P is an occurrence, but a value of P as object of "I think" is not. It is literally meaningless to say "Caesar is dead' is going on now", whether in me or anywhere else.

If an act of thinking is the object, then what can be doubted is "I thought that p ", or "I am thinking that p " - the last being the crux of the matter for Descartes, who wants to show that if it is true I cannot be mistaken about it, and if it is false it did not occur to be doubted. If we

assume, as Descartes does, that in our supposing and doubting the whole vocabulary of our language is available to us, and can be used with full understanding (whatever this may involve in the idiom of "ideas"), then the range of values of P is indefinite. Any assertion or thought must be a value of P , and from this we can conclude that there must be a thinker in every case where a value of P is thought, and the thinker will be an agent since thinking or asserting needs to be done. But the necessity of the agent depends upon a necessary truth combined with the fact claim that p was thought, and that any p should be thought at a particular time is certainly not necessary in any other sense than "thinking p was the necessary consequence of a preceding circumstance".

Once we have recognised this, we can with the aid of the necessary truth which the natural light confirms or supplies for us, that every act is of an agent, conclude that it is a necessary condition of the occurrence of a thinking that a thinker should happen to think the thought in question, and that anybody should think a particular thought is merely contingent in the sense that matters of fact are said to be contingent. The existential claim can follow only from a noted factual occurrence, an act which has as its object a value of P - and this occurrence will, when stated, fall "outside" the value of P which is its object, while only within a value of P , within a thought, can necessity be demonstrated.

As soon as the act is stated or thought, so that instead

of "p" we consider "I thought p", we have a thought which is different from the previous thought, a new value for P. The difference is indicated when values are specified: "There is a 49 bus" is denied by "It is not a 49"; "I thought there was a 49 bus" is denied by "You did not" - "you thought it was a 69", "you said it was a 69", give a context.

That values of P can be doubted is the whole basis of the method of doubt. That a necessarily true thought must be a value of P seems certain, since P is the class of "What can be thought to be so". What we are concerned with all the time are actual thoughts as what is thought or thinkable, and their truth or logical relations or logical status. We can, of course, reject sub-classes of P from consideration, and this is what Descartes does. He dispenses with all thoughts or statements about individual bodies as existing things with the rejection of sensory evidence as not satisfying his requirements; another sub-class goes with the rejection of imagining - and both rejections are in terms of ordinary meanings of "sense" and "imagine". Yet either sub-class presents us with a number of necessary truths - bears are animals..... circles are plane figures....plums are not tetrahedrons..... That some values of P are necessarily true is irrelevant to the argument; they are just not to be considered. And what the rejection shows us is that the necessity of a thought is not relevant to the necessary existence of the thinker, and that we are limited in our doubting to the sub-class of values of P which contains only thoughts or statements that individual

things exist.

That values of P which constitute members of the rejected sub-classes were thought by me, by Descartes, is not denied. If we deny it, we deny the whole basis of our argument: I thought p, and p was existential and false. We must have thoughts that can be doubted, classes of thoughts that can be doubted, occurrences of "thinking p" which are successive in time (and which can be remembered both as thinkings and as values of P), otherwise "doubt" would be meaningless and metaphysics would never begin. What now seems clearly odd about the Dubito is that we are taking for granted that we (each of us as I) persist as thinkers of many thoughts. But that this is the case is apparent from the first sentences of the Discourse, the Meditations, or the Principles. It is clearer in the last, because it is frequently re-stated in the headings to, and even in, the successive principles. Indeed, it is interesting to note that in translating Principles I.8. Veitch avoids the Latin version's "supposing as we now do that nothing exists which is different from us" which makes the argument clear and results in a non-sequitur, and adopts the French version's "that there is nothing which truly is or exists apart from our thought", hors de notre pensée, which throws a cloak of obscurity over the argument.

We must, I shall argue, have sheer incoherence if we attempt to present Cartesian arguments in terms of "we". But if the argument is conducted in terms of "I", then "I" seem

to be a persistent thinker of many thoughts who is seeking to prove that he exists and necessarily exists. Indeed, I seem to be more - I seem to be a man who has thought many thoughts, a man who discovers that none of them had necessary existential entailments, a man who has a moral obligation to doubt that things so thought of really existed; and I am also a man who is unable to doubt that he exists when he acts, when he thinks, who cannot give a meaning to "I am a man who necessarily exists" but is determined to show that he necessarily is a mind and not a man when he thinks that he exists. The persistence and existence of a thinker of many thoughts, then, is not denied or doubted; what is doubted is that I, the persisting thinker, am a man. The metaphysical doubt is to enable us to dismiss "I am a man" in each of our cases because we can, as I can, dismiss for the purposes of metaphysics at least all objects of sensory perception, and hence all bodies, as necessarily existing.

But I still have to prove that I necessarily exist. The proof demands a thought, which admits of universality and of necessity; but it requires also an act, a thinking, which seems inevitably to be contingent. I need an indubitable thought that contains itself as an act which is necessary by virtue of its inclusion in the thought. I need a value of P which has "I" as subject, "thinking" as a verb, and an object of "thinking" if the thinking in question is an act. The whole structure of the metaphysics, as we

shall see, demands that I should have a substance. Any statement "that I thought" is useless for Descartes,

since "if I thought then I thought and existed", while necessary as an argument, demands memory to guarantee the assertion "I thought" which anchors the argument (if p, q ; and p). Even "a moment ago" is sufficient to destroy the full necessity Descartes is seeking, and what is demanded is "I here and now thinking cannot be mistaken in thinking that I think and exist here and now". "I think that p ", as "I am thinking that p ", gives as necessarily true "I do think that p , whether p be true or false"; and this, while Descartes wants it, is scarcely adequate, partly because it is a fact claim whose "in corrigibility" cannot be demonstrated though it may be widely accepted.

It is, in a sense, demonstrable, by showing that certain occurrent thoughts would be impossible unless certain conditions were the case - and this is in part what Descartes undertakes in a section of the Meditations. But his argument does not prove a necessary intuition of oneself thinking in any thinking; it proves that "I think that p " entails "I think that p ", the latter being analysed into "I think that p does not entail that p is true and hence does not entail that I must believe p ". Even here the initial assertion is a fact assertion, and it is impossible for Descartes to claim that the only evidence necessary for the fact assertion is "intuitive perception", since if "I think and I exist" can be intuited, both substance-subject and existence are directly perceived. The whole structure of the metaphysics, as we shall see, depends upon neither existence nor substance

being so perceptible.

What promises better is "I think that I think that p", where "thinking" and "thinking that thinking" are co-instantaneous, and the existence claim is co-instantaneous with the dual thinkings. "I am thinking now that I am thinking now and I exist now while I am thinking" seems to be a single, self-sustaining or self-contained, and self-guaranteeing thought. We can dispense with an alien p, because "I am thinking now and I exist now" is an object, a value of P.

Why must "self-contained" and "co-instantaneous" be so stressed? Briefly, (a) because a thought must be one thought to be a thought and so to be true or false, (b) a single thought must be instantaneous to be "intuited" in the fashion of the Regulae as true or false, and (c) because of Descartes' metaphysic of time as discrete and self-contained instants. The consequences of apparently simple arguments follow for Descartes because they are interpreted in a context of theory of mind, thought, logic and general theory of space and time. (a) and (b) are especially important here. In the Regulae seeing truth is for Descartes seeing connections of ideas, and essentially making one clear and distinct judgment which has an individual subject.

The emphasis in the metaphysics is on the subject containing its predicate as an element in a complexity, but in the Regulae Descartes was on his way to rejecting universal propositions, as relations of ideas only, by converting them

into hypotheticals ("All x are y" into "if x then y") and finally to rejecting all hypothetical arguments and all implication. What gives meaning to a universal proposition is the encountering of individual instances; the scientist, as a good Baconian, is concerned with forms or predicates of individuals, which can be observed and compared as having degrees of the same form. But the metaphysical demands prevent any taking for granted of observable individuals, and their implied existence, with the result that relations of ideas, universal propositions and hypothetical arguments are all we are left with. Descartes is quite correct in believing that existential claims for individual things are the foundation of his science, however rational it may be, since he conceives of science as explaining and relating, and if no things exist there is nothing to be explained or related.

There is much to be said here; but even in the Regulae, and especially as the emphasis becomes more and more placed on mathematics, it is clear that scientia tends to be identified with thought, with ideas and relations of ideas clearly and distinctly perceived, with notions and general propositions which are true whether any things exist or not, thus presenting the possibility that all scientific propositions may be true and yet that there should be no world at all of which they are true.

We have, as metaphysicians aware of this problem, many general truths: "nothing could think unless it existed"

is true, but gives no guarantee that any thing thinks; "if a thing thinks it exists" shows by its form that no existence claim is made; "res cogitans est", or "res cogitans cogitat ergo res est", are still universal, if obviously true. "Ego cogito ergo ego sum" is what is required, since here we have universal necessity in the predications, and existence claim on the part of the subject. But the claim is not yet necessary, since I have to prove Ego cogito, that I think, and the only way of doing this seems to be to think and to catch myself in the act of thinking, catch myself here and now. Yet back we come to what the metaphysics denies is possible, the intuiting of a substance; and back we come to what the Regulae has suggested, and the claim that "existence" and "thinking" are simple notions recalls to us, namely that no simple notions can entail one another.

What is especially odd about the insistence on the here and the now, the immediacy which is necessary for an infallible perception, is that it seems to defeat Descartes' end. If "I think that I think", "I am thinking that I am thinking", is a self-conscious act, and instantaneous, it has full necessity (by virtue of "self-conscious", whatever else that curious term may mean here), but it remains "tied to the instant". The truth is useless for Descartes, since it does not provide even for "whenever I am thinking I am certain that I am", the truth that Descartes wants to establish by discovering a necessary instance of it. He can no more get from "x exists now" to "x persists" than variants of Cartesianism can get

minds from disconnected acts, time from discrete instants, or minds and worlds from discrete "perceptions", even if these are treated as restricted values of P . Descartes can avoid this in part by reverting to syllogism - it is certainly true that any thinker exists, I think now, therefore I am a thinker who exists. But even if we accept this without stressing that his account of universal propositions must be altered completely, it is still the fact claim that is vital; and how vital is indicated by the simple statement in Regula XII that "I am therefore God exists" can be intuited as necessarily true. Descartes is founding theology as well as science, and God is the foundation of science.

"I think that p , now, and it is necessarily true that I think that p , whether p is true or false", seems to establish "I think p now and am", and it is in this form that Descartes preserves it in the Meditations - "no matter if the Demon deceives me, and ensures that p is false, it is true that I think p ". But we still require (a) that I do think p , (b) that I know that I think p , i.e. using Descartes' generic term, that I "think" that I think p , and (c) something to be done about preserving " p " as object, since "I think p " entails "I think p " only by the vacuity of " p implies p " - as an argument this generates not an infinite regress but a cerebral vibration.

The elements in the argument are (1) an act as an occurrence, a thinking, (2) an object of that act, a value of P , (3) a statement or thought that the act is occurring,

and (4) an entailment relation between the value of P as object of the act and the statement that the act is occurring with the value of P as object.

We approach now the secret of the Cogito. If we substitute the statement that the act is occurring ("I am thinking") for p , we get rid of p , and the entailment relation between statement of act and the object of the initial thinking appears to be one of identity. Instead of the difference between "I am thinking" and " p ", we have the identity of "I am thinking" and "I am thinking". We have thus logical necessity within the thought "I am thinking that I am thinking"; the first "I am thinking" is an instance of the general truth which appears to follow from the second "I am thinking", the general truth that I am a thinking thing, and this justifies the general claim that I exist because I am a thinking thing - because I am thinking now. Condense the two "thoughts" "I am thinking" and "(that) I am thinking" into "I think", Ego Cogito, and the instance is both instance and general truth, with a whole argument in a necessary nutshell. "I think" establishes that I am a thinking thing and exist necessarily as such.

This is, of course, not Descartes' presentation of the argument. But it is the condensation of the dual-Cogito into a single "I think" which masks the simple and obvious truth that the initial "I think" is a fact statement, which can be regarded as necessarily true only while we regard it as an act, not as an assertion that an act is occurring. Descartes

can give no necessity to the assertion made now of a past act, and of a present act the assertion is merely true if what is said to be going on is actually going on - and we revert again to "I cannot be mistaken in judging that I am thinking when I am thinking, and I now so judge", i.e. to a principle of infallible intuition not of *p* but of myself as thinking *p*. The introduction of the Demon is irrelevant to this - the best that the hypothetical argument can produce is a general conclusion, and this as a consequence of the hypothesis. And if the Demon deceives me into thinking that I am a man, within the supposition that there is a Demon, the surrender of the Demon as a supposition (whether we substitute another "hypothetical entity" or not) leaves us undeceived, so far as we know, in thinking that we are men. (The change from "I" to "we" is awkward, but the conclusion is to be in the plural, we are considering some other person's arguments, and establishing that "man" is a meaningful term independently of "men" demands a special argument).

But the claim that Descartes exists as a thinking thing while he is thinking is not a claim that we wish to challenge; and it is a claim that Descartes the utterer or thinker apparently cannot challenge. We seem to have a positive form of a pragmatic paradox, i.e. "I am not thinking" is, if thinking is something which I do, a "self-refuting" thought. But it is an ordinary language paradox, in which an act is asserted or denied of an agent, and nothing is implied about

about specific attributes which the agent has, although it is taken for granted that he has attributes which distinguish him as agent from other things. It is especially interesting since, if the thought "I am not thinking" is unthinkable as Descartes wants to establish it to be, the paradox could arise only if there were words over and above ideas; if it is equivalent to "a thinking thing is not thinking", it seems to evade thought as a capacity of a Purely Thinking Thing. But it could arise for a man, for a talking thing, who is capable of giving a meaning to "I existed then but I was not thinking".

The full paradox is that the agent cannot both act and state that he is not acting if the stating that he is not acting is an instance of the act which is to be both performed and denied. "In the instant" we have only "no one can both do and not do the same thing at the same time", and this is unimportant - it fails to distinguish any act from any other act, or to establish anything about agents who act, over and above the exiguous Principle of Identity. It does not matter who or what the agent is in a particular instance, and the insistence upon "I" suggests that the question is one of an agent trying to act and trying not to act, and failing in the attempt. What Descartes is seeking is a specific act which is an instance of the generic truth, and the individual agent is simply provided - without the agent the act could not occur. What he wants is to prove "I am a thinking thing"

to be necessarily true because the denial of it is an instance of it - "I am not a thinking thing" is a thinking which I do.

The generic statement "I am a thinking thing" has been true all the time; I have been throughout a thinking thing capable of various thoughts p and q and r which I have been able to doubt, thus learning to do something which I can try to apply to a special value of P. Moreover, "I doubt-think that I sense that p" is not a contradictory assertion, and founds the method. We should have tangled detail if we analysed this fully, since "sensing" is a species of "thinking"; and even if we differentiate "sensing proper" from the claim that a sensed object exists, the latter claim is "thinking" in the pure sense of the word. Much of the Meditations depends upon this notion of "pure thinking" which can be applied to the species, e.g. denial that I am sensing or remembering is compatible with asserting that I am imagining. What I cannot deny is that I am a thinking thing, that I am the sort of thing that can or does think, because every time I try to deny it I show that I am thinking.

If we treat "I am a thinking thing" as a discursive truth which has been verified, then this does work for Descartes, because it is not tied to the act or to the instant. The truth in question is now of the generic "I am a thinking thing", of "I am-exist" as "I exist-persist", of the entailment at the discursive level of thinking-thing and existence,

and of the verification of the generic in every attempt to falsify it. "I am a thinking thing", as "I do think", can now be expanded into all the species of thinking and all the objects of thinking, without anything further needing to be said of the subject; but no thought can be necessarily true in the same sense as can "I am a thinking thing". And now Descartes seems to argue in two distinct ways, (a) that nothing more can be said of the subject, and (b) that nothing can be said of the subject which is true in the same sense that "it thinks" is true.

Ego Cogito ergo Ego Sum is a condensation of "I think that I am a thinking thing and therefore I exist as a thinking thing". In "I think that I think" the second "I think" means "I am a thinking thing", a thing which Descartes calls "a mind or soul", and this alone can be said only to think - all we can say of it is that it thinks. The first "I think" is a fact claim that an act is occurring, the statement implying that the agent and the act are instances are values of "I" and "think" in the general truth. Instead of " (x) x is a thinking thing entails x exists", we have " $(\exists x) (x \text{ is a thinking thing and exists})$ ".

Both propositions are rather odd, but the second is strikingly so; if "exists" cannot be witnessed as the thinking can, it must be inferred by virtue of the first; and what we require is a formulation like "There is one thing, the thing here and now, of which it is true that it is thinking and

that it necessarily exists". The contrast between this and "There is one thing, the thing here and now, of which it is true that it thinks", indicates part of what is at issue, since it suggests obviously enough that we should be able to recognise the existing agent apart from our consideration of whether or not it is acting in a thinking way.

Though this question of recognition or discovery of agents and other "substances" is a central Cartesian problem, it can be ignored if we note that the first requirement is still that an agent, whatever it is and however "known", should simply perform an act of thinking. If we examine the Meditations carefully we find that all that is deemed necessary is that an agent should think that he exists, i.e. think "I am, I exist". "...statuendum sit hoc pronunciatum Ego Sum, Ego Existo, queties a me profertur vel mente concepitur necessario esse verum". "All things being considered maturely and carefully, it must be maintained that the proposition "I am, I exist", is necessarily true every time it is expressed by me or conceived in my mind".

If Descartes thinks or says, if any man thinks or says, that he exists, then he exists. If he does not say it, he does not say it, though he still exists; if he does not think he, he does not think that he exists. If he cannot say it, cannot think it, then he cannot say or think that he exists, as other men can. If being able to say it or think it is a necessary condition of a thing being a man, nothing unable to say it or think it is a man. "In my mind" adds to

"conceive", mente adds to concepitur, only that it is not a mind that conceives but, in this case, the man Descartes, who locates his "conceiving", by contrast with his "speaking", as in his mind. The next step is to ask "What am I who clearly knows that he exists?", and the answer that Descartes refuses to consider is "I am a man". He prefers to talk of the component parts of a body which I am said to possess, or of body-in-general which is mere extension or mutually excluding extensions, so that all that can be asked is what relations there are between the necessarily existing thinking thing and imaginary or other things.

I am thinking..... there is at least one thing which exists of which it is true that it is a thinking thing. More briefly, "A thinking thing exists". *Res cogitans est*. And this, as his critics pointed out, could have been argued almost as briefly as it can be stated, as it was already stated by St. Augustine. But Descartes is unimpressed, because he knows far more is involved than his critics realise, and than Augustine dreamed. The anchor of the rational universe is to be the necessarily existing "I". But if it is the "I" of the first "I think", then we know only one of its "attributes", that it thought a particular thought at a particular time.

This thought is not self-contained, not self-adequate; the "I" who thinks may be anything at all. But in the case of the second "I think", where "think" is generic, the whole thought actually is thought. It is, for Descartes, a complete

thought, and if it is a complete thought the subject is wholly grasped. (Why he thought this, what this means, we will see below). Instead of "I am thinking", a present tense, we have "I do think", "I am a thing that thinks", "I am a thinking substance"; "thinking" is the substance's principal attribute or essence. Nothing can be admitted to the essence which does not belong necessarily to it, and nothing but thinking does so belong to it.

2. What we have is a definition, as Descartes conceives definition, and "I think that I am a thinking substance" establishes the existence of the thing defined. Descartes now proceeds to expand "thinking" into the species which he has already recognised, and leaves "I" as the thinking substance - a "thing" which is to be considered only as the subject of statements whose verbs are species of thinking. The verbs have objects, are meaninglessly used without objects, and it is by thinking about the objects that a science of the non-mind world is to be founded. What Descartes wants here is another definition of a substance which, in addition to the necessity which attaches to any definition qua self-contained thought, has an additional guarantee of its existence.

The whole procedure, the whole argument, to establish the first substance, is almost farcical. The "I" of the generic, definitional "I think" is a continuing substance,

or the statement is meaningless. Descartes begins with an assumed, a taken for granted, existing and persisting thing with his acceptance of the commonplace use of "I", and he actually considers, if only to reject them as not necessarily true, commonly accepted statements which imply that this "I" is bodily. In other words, the existence and persistence of the substance-thing is taken for granted throughout, and the question is of determining what kind of thing it is, or of proving that everyone else has been mistaken in their notion of what is "indicated" by the pronoun "I" as it is ordinarily used. That is why Descartes purports to consider what other people have considered themselves to be; and the argument is, roughly, that it is not necessarily true that what a thing is conceivably, it is necessarily conceivable as being. So Descartes converts "is not necessarily so" into "is necessarily not-so". No one can, accepting Descartes' rules, show that the thinking thing is a man, a spirit, a puff of smoke, a flame, a body - their only premise can be "the thing thinks", and all other attributes are non-principal and un-"necessary".

In Regula XII Descartes has already recognised that "I think therefore I am" does not entail "I am, therefore I think"; what depends upon the thinking that I am is my knowing that I exist, and what is inconceivable to me is that I should think and not be - the main point in the argument quoted above from the Discourse. "It is inconceivable to me that I should be and not think" can be maintained only by twisting "inconceivable" into "I cannot conceive" and "I cannot conceive that-not". So

to the pragmatic paradox again - I cannot conceive unless I think, so I cannot conceive "that I do not think" without thinking. But what is in question now is not conceiving myself as not thinking when I am thinking, and in fact I can conceive myself as not thinking, as Locke demonstrated when he pointed out that we have very inadequate evidence for thinking that we are always thinking. Only if I accept the definition as a true description of me at all times will I accept the Cartesian argument, and Descartes believes that he is supplying reasons for converting "whenever I think I think and am a thinking thing" into "I am always a thinking thing". What he fails to supply at all are reasons for concluding that there is a thing which is thinking all the time and that I am such a thing.

Locke's point is that I am not always aware that I am thinking, and while he is prepared to accept "I exist continuously" as binding together dreaming, imagining and activities which involve no thinking he is prepared to accept an "I" which is a substance whose existence does not entail that it is at any moment thinking. The use of "I" here is in the ordinary sense with which Descartes begins, a sense in which we can say "I was born many years ago". Locke so far has not begun the process of dividing the "myself" which is used reflexively of "I" on occasions into "my" and a "self" which persists independently of me. Of course, when Locke states "the soul is agreed, on all hands, to be that in us which thinks", as he does in replying to Worcester, the case is

very different, but in the Essay itself the primary question is framed as whether or not men think always, and the evidence is personal testimony, evidence as to whether or not I am thinking all the time. Using "I" in this ordinary sense we can certainly say "I cannot think of myself as a thinking thing without thinking that I am a thinking thing, and if I think of myself as a thinking thing I can say "I would not be the thinking thing that I am unless I was such a thinking thing". Thinking is essential to, is the essence of, a thinking thing. But this, as it stands, is vacuous. My essence derives from the fact that I think; and what we need for "my essence is always to be thinking" is the fact "I am always thinking".

If Descartes' claim is that the idea of substance is that of a thing which persists and endures, and that "thinking" is an attribute of such a substance, he can if he so chooses label it an essential or principal attribute; but what he cannot do is to claim directly that such a substance is what is meant by "I".

Gassendi pointed out¹ the difference between "I can be absolutely certain only that I am a thinking thing" and "I can be absolutely certain that I am only a thinking thing", and Descartes, in a letter to Clerselier² designed to be a reply to selected objections to the Meditations, insists that

1. Metaphysical Disquisitions etc. pp. 62-64. Quoted H and R, 11. pp. 132-3.

2. H and R. pp. 132-3.

he was speaking in the "strict sense" and meant "certain only that", while not wishing at this stage of the argument to exclude "bodily" from the description of the thinker, i.e. not wishing to exclude "I am bodily".

But in the "strict sense" all he is entitled to claim is that whatever he is, he can believe without risk of error that if he is deceived in believing that all the things which appear to him to exist, and that all the propositions he entertains at any time are true, he cannot be mistaken in believing that he believes or in believing that he may believe falsely in all except this one case. But the "may believe falsely" is may believe falsely; what is meant is that what he believes may be false, and there is no necessity involved here at all. He may, for all he knows, be a flame, a breath, a volume of spirits, or even a man.

The complications of the metaphysical logic which Descartes falls back upon in the Replies to Objections are not directly relevant here, since the question is: "To what noun does the pronoun "I" refer?" or "What noun can replace the pronoun "I" in a sentence "I think"?" Our use of pronouns depends upon the possibility of substituting a common noun, a name for a thing of a kind, or the proper noun which names such a thing, for a pronoun. Descartes rejects "I am a man" because it would prompt the question, if we are still trying to answer "What am I?", "What is a man?"; and "A man is a rational animal" would prompt a further question "What

is an animal?". The full reasons for rejecting the answer "I am a man" must be sought elsewhere than in the Meditations, but what Descartes recognises is that our common nouns are interrelated in a complex manner, and that if we want to explain the meaning of a statement which contains nouns we must do so by further statements and further nouns.

This needs elaboration, but if we insist (as I insist and claim Aristotle insisted) that our ordinary language is classificatory, we must insist that we can grasp the meaning of nouns (at least) only by discovering their relation to other nouns. That I extend this, insisting on discrimination and difference, to adjectives and verbs, maintaining that they are meaningful as components in a classificatory language, is relevant but not essential here; it is relevant because Descartes is clearly using verbs and adjectives in their common use, but rejecting the common use of nouns.

Descartes does not want to deny classification, but he is convinced by the natural light that unless we could "know" individual things, and hence primarily one individual thing, we could never relate two individual things, and could never classify. This appears in an obscure manner in his reply to Gassendi's criticism, where he takes Gassendi to be arguing "that the idea of Thing cannot exist in the mind unless at the same time the ideas of animal, plant, stone, and of all universals are found there".¹ "This is", writes Descartes,

1. H and R. II.p.214.

"as though in order to acknowledge that I am a thinking thing, I ought to acknowledge animals and plants, since I ought to acknowledge Thing, i.e. what Thing is".

This is nonsense to Descartes: how can we know the many unless we first know the one? But if knowing the "one" precedes classification, then it precedes the use of any nouns which derive their meaning or use from classification, any nouns which have a plural and can function as class names. An individual thing is just what it is, and demands no sustaining relations with other things - a substance is that which can exist independently of anything else. So, too, for Descartes, the thought of a thing can exist independently of any other thought. All thoughts of individual things are self-contained, and can be explained by analysis, by showing what is actually and already included in the thought.

In the end the notion of any thing can be analysed into "substance" and attributes - the quote marks around substance are necessary here because the term "attribute" never appears in a proposition or its analysis, while "substance" will always appear at least in the analysis - and the full descriptive statement which is the analysis will be "a substance-thing in which the attributes such and such reside". Before we have a "thing" we will need at least one attribute, but the role of "substance" is plain. Through it we lay the foundation for the individual as one, as existing, as persisting, and as the sustainer of attributes. Nothing which we encounter and name

will be a substance which has no attributes, but the "mind" must be capable of grasping "thing-substance" in a single instance. And what the doctrine finally arrives at is that we never encounter substances at all; the mind encounters attributes, which it grasps or recognises immediately by virtue of its innate capacity, and then it exercises its further innate capacity to infer the existence of a sustaining substance.

The doctrine is most clearly intelligible, and can be most cogently argued for, in the case of commonplace observable things, since there is a sense in which we speak of seeing the colour and the shape of a thing, a colour and a shape which can be duplicated in a painting which we can mistake for the thing in question. But the plausibility and the intelligibility disappear, as we shall see in detail below, when we surrender men (or animals) as the subject of sensory-observation verbs, and follow the traditional path of making "minds" the subjects of special verbs whose "encountered" objects are themselves "mental" or "in mind" or "states of consciousness". For Descartes, doing metaphysics in isolation from the world and so confined to discursive thinking in the absence of objects of perception, i.e. to "thoughts" and "ideas", the notion or idea of "substance", conjoined with any predicate, makes up what is merely a "thought". The Cogito is to provide an instance of such a thought which guarantees for thought and by thought the

which he can think and consider as existing.

existence of a substance (strictly, it provides a "thinking", an indubitable act, if the argument is to hold at all - we have still to consider the difference between "I think p", where "p" needs no analysis; "p is a thought", which leads on to one version of the theory of "ideas"; and "p means what it states", or "p can be stated in a language", which enables us to relate "thinking" and doing science or metaphysics).

While we are concerned with encountered attributes and our modes of relating them to or by notions of "substance" we are, so to speak, below the level of common nouns and complex things which appear in our classifications. The thesis that all complex notions are composed of simple notions promised a list of simple notions which would enable us to record all the "elementals" in the universe; but the list is not forthcoming. In parallel here, all the complex things which appear in our classifications should be reducible to "substance" and simple attributes; but no attempt is made by Descartes to show a complete reduction of any such classifiable thing to "substance" and specific simple attributes. Such a reduction would enable us to understand how our complex ideas were actually constituted, what our nouns really meant or meant in full. What Descartes does is rather to assert the rule of composition of substance and attribute, assert an attribute, and by lawful combination of "substance" and that attribute he claims to have constituted a "thing" which he can name and consider as existing.

In our ordinary discourse "I" belongs with complex and classifiable things, and a noun can be substituted for it, e.g. "I am a man". Descartes rejects this substitution. Traditionally the definition of "man" was "rational animal", and "rational" was the principal attribute of "man"; the two truths "all men are rational" and "no non-men are rational" established "men" as members of a class which was included in the class "animals" and excluded the class of non-animals. Descartes selects "thinking" as an attribute, and as soon as he adds this attribute to "substance" he has a "thing" to which he gives the name "mind", just as later he gives the name "body" to extended substance. But the attributes "thinking" and "extended" are called "principal attributes", a usage which derives from classification. It entails that there are other attributes of that which has the principal attribute; and yet it is difficult to see how "mind" qua mind or "body" qua body can have any other attributes.

On the other hand it is easy to see that if a particular thing is a thinking thing or an extended thing, as distinct from other thinking things or extended things, it will have attributes which distinguish it from those other things, to see that members of the class "minds" or things which think will differ from one another. When Descartes reduces "I" to "a thinking substance" he is establishing a special usage in which "I" belongs with mind-things and body-things in a classification of two classes, and this

special usage can be maintained "only in the strict sense", i.e. the sense in which all that can be said of "I" is that it thinks.

And only if we accept Descartes' notion that thoughts or statements are logically independent of one another, so that an argument in one place can be completely independent of an argument in another place, will we fail to note that in the "strict sense" entailed by the *Dubito*, we should not be speaking of classification at all. "I" am, in the full sense of "strictly", a thinking thing and there may be nothing existing except myself as a "thing which thinks". In so far as I am a mind, the principal attribute is my only attribute.

More immediately striking, however, is the fact that Descartes is forced to admit that the special usage which equates "I" with "mind" is not incompatible with "I am bodily", and thus, until Meditation VI which "proves" that minds are not bodies, Descartes has no reason for rejecting "I am an animal". All he can claim is that we have as yet no reason for asserting it; and "as yet" means only that Descartes has not admitted the question of what attributes other than "thinking" an individual thinking substance must have in order to be an individual, i.e. what other statements must be true of *x* if "*x* thinks" is true. Granted that extended substances exist, all that can be asserted in the strict sense is that there are things which think and there

to remove "bodies act" from the propositions of physics.

are things which are extended, and these two statements can readily enough be treated as obvious fact statements in the commonplace mode.

What he is required to prove is that thinking things are not bodies, that bodily things never think; and the possibility of this being false, the need for it to be proven, is sufficient guarantee that it is conceivable that bodies should think. All that is inconceivable is that bodies in a special ("strict") sense should think, since these bodies are merely extended. (And let us remember here the parallel arguments to souls and minds - it is inconceivable that "mere matter", "mere collections of atoms", "mere collections of physical qualities", should think. The logic of much of this sort of argumentation is provided by: "substance is merely that in which attributes inhere"). Nor can minds "in the strict sense" be extended, since all that minds can be said to do is to think, all they can be said to be is "thinking things".

Yet the two cases of attribution are not even parallel. "Thinking" is, as Cogito, an act, which requires an agent, and the agent is the thing or substance; extension is, as an essential attribute, a quality as distinct from an act - "moves" suggests such an act, but even when "extended substance", the res extensa, is lopped into particles by the Divine introduction of motion into it, these simples seem able only to be moved "by motion". Descartes seems determined to remove "bodies act" from the propositions of physics.

It is inconceivable that bodies in the strict sense should not be extended; but it is meaningless to say, in the ordinary sense, that cows or men or dust particles are not extended. It is meaningless in the sense that "if x is not extended, x is not a man, a cow, etc." is an argument which always holds. It is this which justifies Descartes' treatment of "extension" as the essence of bodies, or of "extension" as included in the notion of "body". But it is not meaningless to say that men think, and that a man may at some time be not thinking, though the last statement might in fact be false; and we might well claim that it is meaningless to say "x is a man and x is incapable of thinking in the generic sense of thinking" on the grounds that the conjoined propositions are contradictories. Nor is it meaningless to say that cows eat grass and breed, and jump over logs if not moons, that bodily things act in a variety of ways. The claim that gross bodily things are reducible to physical particles, and that the behaviour of gross bodily things is merely a complicated pattern of behaviours of particles, is a fact claim about the actual constitution of gross bodies and their behaviour, and the capacity of Descartes or or anyone else to conceive finite particles in motion is not in the least a justification for claiming that the reduction is possible, the constitution is such, or that the gross descriptive statements are "really meaningless".

That "thinking" is not "extension" requires no

proof; but the statement that "thinking", qua act or even qua process, is not extended, is a fact statement; it is not a relation of predicates, and it is difficult to deny because it is difficult to give it a meaning. The ordinary sense of "I" with which Descartes begins permits "I see", "I am an animal which can see", "I am an animal who reasons", "I am an extended thing which thinks". The question is as to whether I who think am extended, not whether my thinking is extended. But there was in Descartes' day an established use of "mind or soul" which permitted "I have, I possess, a mind or soul"; and in this sense "I am a mind or soul" is false, if not meaningless, although "I am a union of soul and body" is true, and "I am a man" is true by virtue of the "fact" that men are unions of souls and bodies. And there is a further use of "I" in which "I possess a body" is permissible, and this is readily assimilable to "I am a mind or soul" and "souls possess bodies". It is this third use which seems to develop into the question "Where is the soul in the body?", a question which assumes that the soul is or must be in the body.

Descartes preserves the three uses, and must preserve them if there is to be metaphysics and something beyond metaphysics which is science and something beyond science which is the system of facts which make science necessary and meaningful as science. Yet his metaphysics, derived by argument from facts and in terms of ordinary usage, is

denying both facts and usage. What he does seem to maintain is that doing metaphysics is not doing science at all, that a metaphysical truth expands into a scientific truth and later fact truths, and hence that the order of the completed One Science is Metaphysics, Physics, Special Sciences, and Description of the Known World.

How, then, is the "first truth" that I think to be expanded? In at least three ways, it seems.

(a) By expanding "think" into species of thinking, and this concludes with "I am bodily since I imagine and sense" or there is no physical world which is not merely conceptual, mere "thought". Hence the "intimate union" and the insistence that man is a real man, a single substance; hence also the difficulty that cognitive verbs are to be used with two different subjects, "man" and "mind", a special difficulty when physics and physiology combine to show that what we ordinarily call perceiving is the mind's being consciously affected by what cannot be perceived, viz. particles in motion.

(b) By asserting "I am a thinking thing" and "there are many thinking things", since unless this is so there is only one thinking thing in the pole and in the world. And unless, I shall argue, (a) is effected, there can be no reason at all for any subject thinking that there are other thinking subjects.

(c) By claiming that "thinkings are thoughts", "thoughts are p and q and r and all the other thoughts I

think and which are true or false"; and here the "thoughts" are neither me nor my essence but the condition of there being a metaphysics or science. They are the condition of the Cogito itself being thinkable and "real".

It is by thinking of, by examining, thought done that Descartes develops his metaphysics and his logic; the thought with which he begins is thought in its ordinary mode, thought communicated by statements in the ordinary language which precedes the technical language or vocabulary in which thoughts are to be discussed qua thoughts; and Descartes is bound to contradict his logic of substance as well as the conventional logic of ordinary language propositions in developing the Cogito as an argument.

If (a) is combined with the metaphysical doubt and a Cartesian theory of perception it produces "I am aware of what is before my mind qua presentation or idea" and "that is all I can be sure of"; and this is the core of a later, necessity-ridden Empiricism. The difference of this sense of "I" from the ordinary usage of "I saw a man", "I saw the accident" (where we accept as certain the gross characterisations and are forever uncertain about the "data"), once it is recognised, leads finally to the denial that "I" belongs to the "mind" at all. The "I", as mind, is Bradley's monster, Hume's undiscoverable, a ghost without extension; and inevitable - and all fact-statements are complex. it is allowed to slip back into ordinary equivalence with "man" or "person", though that slipping back does not assist

us very much if we try to relate "I" with a mind which is the sum of its contents or the series of its thoughts.

(b), as I suggested, entails solipsism, unless it is combined with (a), e.g. so as to permit "I can hear what he says and understand it, so that I know he is a thinking thing, a mind, not a machine or brute". Proofs of solipsism begin with the denial of some such complex statement as that above, i.e. with an accepted language. That is why the solipsist appears as a man who proves in a human language that he is a mind which cannot speak and which he cannot speak intelligibly about. Only if we can give a meaning to "we men" can we give a meaning to "we minds".

But it is (c) which is important for Descartes, for philosophy and for science. Philosophy, science, and their combination in our giving an account of man, depend upon what we think and how we think; and what we think we are, if this constitutes a special science, still comes under the head of "what we think" and "how we think".

At the time of writing the Meditations Descartes has already a thesis with regard to the nature of thought qua "what is thought of things", a thesis with regard to thinking as possible independently of experience of anything in the world. He has discovered the nature of science, which moves in an orderly fashion to the complex from the simple and indubitable - and all fact-statements are complex. Hence he has a method of thinking, of doing science, of

reasoning or arguing, which applies to all fields, and whose application he wants to demonstrate in various fields as it has already in part been demonstrated by geometers who almost grasped the philosopher's stone. Hence he tries to show its applicability to metaphysico-theological problems, with a proof (that depends upon clear and distinct relations of ideas which everybody has) of the immaterial immortality of the soul and the existence of God.

Until that point in his "career" he had been largely concerned with the ordering of truths which converts the disorderly collection into an ordered science. How the truths were discovered, how the thoughts came to be thought, was unimportant; what comes from the ordering is not truth but necessity, proof by logical consequence. The truth which is to be put into necessary order for metaphysico-theological purposes is "I am an immaterial and immortal soul", and the proof depends upon the "I-soul-self" being the thing which thinks; what it thinks is irrelevant in the sense that "I am a thinking thing whatever I think, whatever I believe" must be true on Descartes' argument. The proof holds of Gassendi, even if Gassendi believes himself to be a man. But it is thought as act-and-idea, as thinking-what-is-thought, that characterises or is an attribute or predicate of "I"; and it is thought as what-is-thought which contrasts with what-is-extended as thoughts-of-bodies contrasts with bodies.

Once we consider what is thought to be identical

with "ideas", once we stress what-is-thought at all, then the identification of "thought" with "simple thinking substance" is impossible; the essence of mind is no longer an act of thinking or the power to think, but "being thoughts". Mind is not thinker, but thought itself.

The Major Path to Thinking Substance leads us to the next chapter, Thought and Its Theory.

Chapter VI.

Thought and Its Theory.

1. A survey of the thesis regarding the nature of thought in the Regulae illustrates the first obviousness of the Cogito to Descartes, and also his notion of an argument, viz. the reduction of complexes to simples which, along with their relations, are intuited.

This is neither pointless nor simple - it has to be related, however, to both scientific and familiar thinking, and Descartes' (broadly traditional) distinctions of understanding, imagination and sensation.

Clearly the notion of axioms and postulates in a "geometrical" system is particularly relevant to the thesis, but such a science as ordered and structured and the actual "doing" of such a science are not identical.

Further, questions of "notions" and of the origin or "getting" of notions demand discussion.

2. The results are puzzling. We seem to arrive at logical propositions, other types of proposition with different sorts of terms, and a theory of the structural relations within thought; and the distinction between predicates and attributes, subjects and substances, must be related to the different types of statement involved.

We still have to consider the relation of notions to minds, and this is obscure, as is the role of mind in relating notions.

3. Talk of notions and ideas is meaningful, and only meaningful, (a) in relation to statements about men thinking, sensing, etc., these being historical activities of men doing science (in a broad sense), and (b) in relation to statements which constitute sciences.

Geometry presents the strongest case for the claims as to the nature of scientific thought, but the claims do not fit geometry as it has in fact developed historically, nor an ordered geometry which has resulted.

Descartes' rationalism is not a description of science.

4. Geometry and "non-geometry" as the study of irregular bodies are related - the same terms appear in both. The non-geometrical demand observation. Descartes takes it for granted that observation is possible and veridical in all experimental his experimental physics, optics, anatomy, as he accepts a science or sciences of man; but equally he proves observation to be impossible.

Is his rationalist physical "system" cosmology, cosmogony or "merely useful hypothesis"? The same question must be asked of the "mind or soul". Each of the three seems to be accepted as an answer.

"Does the being, which in our dialectic we define as meaning absolute existence, remain always in exactly the same state, or does it change? Do absolute equality, absolute beauty, and every other absolute existence, admit of any change at all? or does absolute existence in each case, being essentially uniform, remain the same and unchanging, and never in any case admit of any sort of change whatsoever?"

.....

But have we not said also that, when the soul employs the body in any inquiry, and makes use of the sight, or hearing, or any other sense - for inquiry with the body means inquiry with the senses - she is dragged away by it to the things which never remain the same, and wanders about blindly, and becomes confused and dizzy, like a drunken man, from dealing with things that are ever changing?

Certainly.

But when she investigates any question by herself, she goes away to the pure, and eternal, and immortal, and unchangeable, and so she comes to be ever with it, as soon as she is by herself, and can be so: and then she rests from her wanderings, and dwells with it unchangingly, for she is dealing with what is unchanging? And is not this state of the soul called Wisdom? "

Socrates, in the Phaedo. (Church)

"The visible, he replied: that is quite obvious.

And the soul? Is that visible or invisible?

It is invisible to man, Socrates, he said.

But we mean by visible and invisible, visible and invisible to men; do we not?

Yes, that is what we mean."

Ibid.

"That they consider their own mind, and all those of its attributes of which they shall find they cannot doubt, though they may have supposed that all they ever received by the senses was entirely false, and that they do not leave off considering it until they have acquired the habit of conceiving it distinctly, and of believing that it is more easy to know than any corporeal object".

Descartes. Postulate 2. Reply to
Second Objections.

Chapter VI.
Thought and Its Theory.

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Thought and Its Theory.

1. In connection with the nature of thought, the Regulae elaborates a thesis that: (a) some thoughts are complex, and may be false; (b) that complexes must be made up of simples; (c) that simples are known with utter certainty and clarity and distinctness if they are "known" at all - knowing X entails knowing X completely if X is simple;¹ (d) the simples cannot therefore be false - there cannot be any element of falsity in them, and this means in other words that they are terms, and not propositions, so that it is meaningless to say that they are true or false; (e) "thinking" is such a simple notion, as is "existence", and consequently (f) anyone with a mind, or any mind, recognises that he or it thinks and exists, since (g) this judgment is a relation of simple notions, and such relations are simple and just "seeable" as are the simples themselves.

This summary of sections of the Regulae (chiefly of XII) illustrates how the obviousness of the Cogito is first arrived at, and shows that it was, in fact, held as such by Descartes at an early period.² But it also illustrates what Descartes will accept as an argument, namely the reduction of

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1. This use of "knowing" presents difficulties, in part indicated by (d). One of the general difficulties we will encounter at various stages in the thesis has already been developing - that of distinguishing "knowledge by acquaintance" in three forms: x in (x x) is variously treated as individual thing, individual attribute, and individual notion or idea or nature.
 2. Unless we are completely wrong in our dating of the Regulae.

any truth-claim to terms which are irreducible to other terms, and whose relations are themselves simple, irreducible and obvious. The Dubito, while a reduction, is not the sort of reduction which is required, however, although it could be claimed that whatever is dubious is complex.

The pattern is clear enough. We begin with thoughts which are complex, observe their complexity, and this is sufficient to establish that there must be simples by the analytic "complexes must be of simples", "complexity is meaningless without simplicity". The test of simplicity is irreducibility, our inability to expand an idea into constituent ideas.

It is such a principle that enables the analysis which is the keynote of Cartesian science to proceed to the establishment of "simple notions", and what needs to be discussed is the relation between this analysis (which others have called abstraction - Descartes himself we shall find struggling with the distinction in order to preserve the simplicity of "extension") and the synthetic procedure upon which thought and science depend. It is the synthetic procedure which (a) never seems to work, (b) perpetually leaves us with the impression that Descartes always argues in the opposite direction from anybody else, and (c) presents us with a series of statements about what must be so, what must have been so, or what ultimately is so, while statements about what merely is so are reduced to "seems to be so", the fate ultimately of what we regard as the familiar world as

science and metaphysics develop in their "necessary" way.

The sense in which "thinking" is simple as a notion is not, I suggest, easy to arrive at. It can be so simple only as an act, and "x thinks something" is a necessary condition of x, whatever it or he is, thinking that x thinks, and so being acquainted with an act which is just an act and kind of act. What is simple as an act requires an agent who or which is simple as an agent, i.e. some thing which is "one" as the act is "one". But the argument would apply to any act-assertion in the normal tongue, and would show nothing to deny an actual complexity to the thinking or to the agent; Descartes demonstrates that the idea of the act is generic as well as specific (qua "idea" we have trouble, as I have shown, in giving meaning to the specific), and the full statement of an act demands an agent-substance and an object, an object which, as a judgment, is complex.

In the Regulae there is no question of justifying the treatment of "thinking" as simple, a simple act grasped as such and named as such. What emerges is the notion of a simple intuitus or inspectio mentis which is concerned with awareness of simples; but initially the doctrine of thought and inquiry presented demands no reference to an "I" or to a simple agent. Even when we are concerned with a "certain number" of simple notions (Descartes sometimes insists that there are very many, sometimes that there are comparatively few) and their relations, these are presented in relation to thought qua science which results from inquiry. One

section is concerned with an account of sensation and perception and imagination, but it begins as a "useful hypothesis" and clearly treats the agent who is doing the arguing in question as bodily; and another section insists that we are going to succeed in science by using the understanding, the imagination and the senses - the traditional faculties or powers of men - and not by ignoring any one of them. In brief, Regula XII reads:

"Finally, we must make use of all the aids of understanding, imagination, sense and memory, whether for the purpose of getting a clear and distinct intuition of simple propositions, or for putting between the things which we are seeking and the things we already know some fitting¹ connection which permits us to recognise them (as connected), or for finding the things which are to be compared one with another, without neglecting any resource of human industry".

I have tried to make the translation literal and yet intelligible - Descartes' simple language presents difficulties. What he has in mind, on the model of mathematics, is a distinction between questions or problems and the accepted or established truths which are the things which we already know. Solving problems is thus finding connections between what we know and what we have not yet "recognised" - it is, roughly, analysing problems into parts which we do know, parts which we do not know, and discovering relations. As solved, the problem becomes part of what is known. "Reduce complexes to simples" is a rule of procedure, readily intelligible to anyone familiar with algebraic solving of problems or doing geometrical exercises. The "simples" are ultimately either

1. "tum ad quaesita cum cognitis rite componenda".

postulates, axioms and definitions or the indefinable terms which appear in them. (There are problems here).

The role of the senses, which enable us to compare and to measure things, and of the imagination which enables us to have "bodies" in mind, is ancillary to this formulating and analysing of problems in a sense, but the "sense" in question depends upon whether we conceive a science as a rational system having application but containing no observation statements (while admitting that experiment may be necessary at some stage in determining scientific laws or truths), or regard observation statements as an integral part of any science.

What I wish to stress is that Descartes, insisting on sensing, imagining, remembering and understanding, uses "we" for the subjects who are inquiring and doing each of these things in doing science, i.e. in inquiring; and the insistence is on powers which we have and can exercise as men. Thinking or reasoning is something we do, like investigating, and it is possible to investigate "man" the inquirer by using all the powers. The thesis that there are minds and bodies is subsequent to the recognition that men have the powers in question, and Descartes explains that he has scarcely space to present all the necessary "preliminaries" for explaining "what the mind of man is, and what his body is, how the body is informed by the mind (mens), what powers there are in the composite-man which are used (inservientes) in the knowing (of what is true) and what each of them in particular does".

So far as science and the structuring of science is

concerned, these questions need not be answered; it is enough that men should be able to think and to record or communicate their thoughts. Science is, in this sense, what men think, the truths men state, agree in, and record.

Scientia is *La Pensée*, and this "thought" is universal and objective, public to all who do science. Study of my individual thinking, in which all sorts of things interfere and in which error is possible and indeed as frequent as correct concluding, is only important in helping me to an understanding of what accurate and adequate scientific thinking is, so that I can practice it and make it habitual.

There is no trace of associationism in the Regulae. The rules are for guidance, and what is presented primarily is an anatomy of thought qua science, or science qua thought. The notions are open to us all as elements or components in science. Descartes goes beyond this in justifying the rules as against other rules (e.g. syllogism) which he condemns as impediments and distractions because they demand unnatural thinking; hence he claims (a) that his sort of thinking is what everybody can do, (b) that it is the sort of thinking which in a confused sense everyone does do, and (c) that by restraining the "will" and following a rule or rules become habitual everyone will think in a scientific manner. Ordinary thinking may be bad scientific thinking, but the two are not entirely different kinds of thinking. Ordinary thinking especially lacks order, not in its sections but as a whole.

Descartes thus puts the emphasis on order and on problem solving, insisting correctly that problems arise in terms of what we know already - otherwise problems are unintelligible. But if sciences are reducible to simple notions and simple relations, all thought will reduce to simple notions and simple relations; that we have such notions should be easily demonstrable; that thinking depends upon having such notions should be easily demonstrable; and what is perfectly clear and distinct is that these notions and relations must be "objects of thought", must be what we (or if it is the mind after all which thinks, "our minds") know, intuit, "see", grasp or are otherwise related to, and if we cannot "acquire them" we must simply "have them".

Let us note, however, that the "slide" begins with "cannot acquire them". Most of the Regulae are intelligible within the framework of "men can sense, perceive, imagine, remember, think, do science, think about their thoughts, analyse and order them, and construct ordered science". It is only when thinking is considered as "going on in one's head", when ideas and notions as constituents of thoughts are regarded as mental entities, "things in mind", that the question "how do ideas or notions get into minds?" must be asked, and answered by "they cannot get in" because no one has ever managed to make the question intelligible.

The question and its unintelligibility we must consider later; whatever we do with it will not alter the fact that notions are related to what we think, whether science as what

is thought is a phantasy which we think dreamingly and imagine we reveal to others, or true of a world. An account of our (essential) process of thinking would be completed when the list of simple notions and relations is made explicit. The determination of such a list would, it seems, be the solution to most of a scientist's problems; but it is never seriously undertaken. The Regulae goes little further than claiming that there are certain notions which apply to all things (unity, existence, duration and "the like"), and certain notions which apply to one or the other of two kinds of thing in the world (knowledge, doubt, ignorance, volition and "the like" apply to spirits; motion, extension etc. are "apprehended only in bodies"). Instances of relations are "things which are the same as a third thing are the same as one another", "things which do not bear the same relation to a third thing are in some way different from one another". And, suddenly, all simple notions have a corresponding simple notion which is a "negative or privative" - "nothing", "instant" and "rest" are as genuine qua intuited "notions" as are "existence", "duration" and "motion".

Insisting on the simplicity of privatives, Descartes claims, is useful in helping us to maintain that all non-simples known to us are composed of these simple notions; it enables us to say, when we judge that a shape is not moving, that our thought is "somehow composed of shape and rest". With the exemplification, discussion of privatives is complete.

But what is the point? Descartes is seemingly aware of difficulties with negation as it figures in our actual thinking; it seems to demand relation, and he wants to deny any relational element to the exercise of our faculty of intuiting simple notions. Negation, like affirmation, is to be restricted to the exercise of our other and distinct faculty of judging, which is relating. "Motion" and "rest", if simple, must be intelligible in complete independence of one another; their logical opposition is an "external" relation; but what the example appears to show is that when we judge "a shape is not moving" what we really think is "a shape is at rest", and this is tantamount to a denial that there is a class of "negatives or privatives" at all.

All simple notions are positive, and when they are related logical relations, whether of equivalence, contingent connection or necessary connection, can be intuited, i.e. just "seen". Exclusion can equally be just seen. Is this in any way discordant with what I have argued above in connection with thinking, notions and science? The notions are objective, and belong to what is thought qua science. Logical relations are objective relations between notions; we do not create them. Intuiting is something we do when a simple notion "appears" or when we reach it by thinking analytically about thoughts; judging is something we do, and then we can inspect the judgment and see if the relation is of this or that logical character. We have no explanation of why we think, why notions appear or judgments are formed,

why a predicate ϕ makes its appearance as a predicate of x on a particular occasion. The primary truth is that we do think, do do science; a notion is a notion because it appears in thoughts, and simple because thinking about it reveals that it is irreducible; "I have a notion in mind" means that it does appear in my thoughts, that I understand statements containing a certain term, not that there is a thing somewhere which I can look for without knowing what I am looking for. Treating "science" broadly, it is assumed that we do science, that our developed science can be studied and analysed to produce (a) a theory of science or science of science, (b) a re-ordering of science, and (c) a set of logical principles or truths about the relations of terms in statements which justifies the re-ordering and guarantees it. Until we raise the question of "who does science?", thus asking a special scientific question, there is no point in talking of "mind" at all.

Descartes assumes an answer to the question in undertaking to present rules for the guidance of men who have a variety of powers relevant to inquiry and act in various ways relevant to inquiry. They explore the world inquisitively and record observations and conjectures, thus constituting sciences. A study of these sciences, a theory of the structure of these sciences, based upon a study of these sciences, is a plausibility, and the test will be success in demonstrating structure and perhaps re-structuring.

The results of inquisitive (and other) activities are recorded in books, in beliefs that achieve no inking or pencilling, in the modifications of the ordinary vocabulary and in the more fluid changes in technical terms. If we crawl into a selected shelter and in complete isolation re-consider the results of inquiry in a language which we have learned there is no point in assuming that we were really in isolation all the time, and hence that we did all the science on our own, devised the language on our own; and even if we do assume this, assume that "thinking" and "thought" have a meaning which we never grasped before, and undertake to give an account of what thinking is, we still must make our account fit the thinking we have done.

2. Let us list some of the puzzling features of the doctrine of "simple notions":

(a) The pattern of simple notions and relations is held to be the structure, and in some sense the dynamic, of our thinking, but of neither the pattern nor the dynamic are we ordinarily aware. Descartes professes to have discovered it; one person at least professes not to understand it as an account of his thinking, and denies that what he understands of it is an account of anyone's thinking.

(b) The relation statements are made in terms of "things" equal to and different from one another; here "things" is a class term, "thing" a variable if we use the hypothetical formulation. I shall try to show below that no such statement is meaningful unless the variable has distinguishable

instances, and the instances may be scientific entities (particles, triangles) or fact-things (horses). Neither "equal" nor "different" are meaningful unless the "things" have specifiable attributes. "In some respect" is an integral part of the meaning of "equal" and "different".

(c) The "mental" predicates, as verbs, i.e. as "know, doubt, do not know, and wish", appear in ordinary discourse in familiar fact statements, though as verbs they are difficult to grasp as simple, and as abstract nouns they are philosophical headaches.

(d) Descartes exemplifies his rules for the direction of the "ingenium", of "l'esprit", or of the human inquirer, in elementary mathematics; after his initial statement that extension and motion are "apprehended only in bodies", i.e. that extension and motion are features only of bodily things, his further statements are utterly foreign to anyone but a mathematician. The rules, however, are to be so universal that they apply to all sciences. Mathematics illustrates the working of the rules in a special field; and applications to other fields are difficult to find.

(e) The use of "things" as a class term for two and only two kinds of thing is as unfamiliar to most men who think as are the logical and grammatical rules; the use is of a different order from the logical or grammatical truths, since it contradicts and is contradicted by ordinary thoughts - no thoughts can contradict the logical rules.

(f) In (a) and (b) we can see the possibility of an

argument that anyone who has done any science at all, any thinking at all, could grasp immediately what is meant by a stated rule - he is grasping or understanding what is obviously exemplified in his thinking. The relation statements appear in elementary logic books or geometries; the terms in this sense are technical and foreign to ordinary discourse, but they apply to such discourse in a special way.

What I shall argue here is that if p is a logical proposition which states truly a feature of a thought or any thought, it is not a component or ingredient in that thought; nor is it a rule of composition of thoughts which must be known prior to the formulation of a thought. The argument that a propositional thought can be analysed into a formal or applied thought X and a material or stuff thought Y depends upon the possibility of unthinkable thoughts - at some point we have "thoughts without form" and "thought without content".

Descartes' attempt to treat all inference as linear is in fact incompatible with logical propositions or "relators" being other than superfluous in reasoning; but as operators upon simple notions they would be contained "in" all judgments in a variety of ways. Argument would then be unpacking "thoughts" we had already packed.

(g) The whole presentation depends upon a distinction between predicates or attributes (notions which apply), and subjects or substances (that to which notions apply).

Most of Descartes' metaphysics depends upon the notion of attributes inhering in a substance known only as that in which they inhere. Here simple notions are related by addition to the notion of "thing", and the consequences will concern us at length below.

The distinction of subject-substance and predicate-attributes might well be claimed to be the first "truth" of a science of logic, and the first truth of a science of thought in the sense that logic is a science of thoughts. But even if this were admitted, terms of physical science, terms of a science of minds as agents, terms of fact statements, do not appear in a science of logic; and on the face of it a claim that "attributes are always of a substance" is a first truth, which everyone recognises before thinking other thoughts, is merely ludicrous.

§.....

Two points begin to emerge: first, the simple notions are terms which can figure in factual statements (men think, rabbits are extended), in scientific statements (minds think, particles are figured, bodies are extended), and in logical statements (these simple notions can be attributed to "thing"), and these statements are radically unlike one another; second, simplicity and universality or maximum range of application are identified.

Thus at the level of facts, if this is a theory of thinking, we seem to have a doctrine of universalia ante rem, which expands into a doctrine that ideas of things are additions of ideas of universals and (with maximum neglect of

argument) that things are structures of simple universal things. At the level of sciences, the propositional statements of relations are the eternal truths of previous metaphysicians, but they are truths about complex ideas or things "held in idea" or just plain things. Logical truths about substances and attributes are, however, in a different case.

The issue to be considered here is the role of the logical and eternal truths in our thinking. It may well be argued that we can give meaning to them, and that our thought would be meaningless unless our thoughts were in accordance with the truths. The notions involved need not figure explicitly in our thinking, and yet may figure implicitly. But if this is so, and they can be exhibited by an analysis of thoughts, we have a doctrine of unconscious elements in thought, and especially of thinking as something which goes on "in mind" or which "the mind" does, and of which we know nothing.

All that is clear and distinct about this is that the conclusion can be seen to follow from the premises, and the historical light reveals clearly that Descartes and his successors close their eyes firmly when the entailment appears.

"That nothing can exist in the mind in so far as it is a thinking thing, of which it is not conscious, seems to me self-evident", Descartes claims in replying to Arnauld.¹ But if this holds, what is in my mind at any time is what I am conscious of thinking at the time, and it is meaningless

1. H and R. II. p 115.

to talk of notions not included in the thought or principles or truths not part of the thought, i.e. actually thought, as in the mind. Pushed home, since Descartes is aware of the thought "that nothing can exist in the mind of which it is not conscious" and it is self-evident to Descartes that it is a true thought, the claim seems to make reference to minds and "in minds" superfluous.

In the odd cases of "relating" which Descartes considers, he seems clearly to treat the relations as somehow operative. They are the conditions of our just seeing that two crowns equal in height to a third crown are equal in height. We do not need to state or think the formula in order to draw a conclusion; we compare the things directly as having one quality or degree of a quality. The interest is rather in a Baconian logic than in minds, unless we want further to say that minds are sorts of things which are so constructed that they can so recognise and compare, rejecting "men are such that they can learn to perceive and relate what is perceptible and related" or positing that minds are so constructed and related to men that men are in consequence able to learn to perceive etc.. Granted, anyway, that we can do this sort of thing, the general relation can be stated as "if a thing is equal to etc." because the "idea of thing" is correlative with the "idea of things", of crowns and columns and cones. We have no difficulty in understanding how simple notions apply to all things of a kind while we have knowledge of different things which can be recognised to be such and so.

We have considerable difficulty in discovering how we can be said to be aware of (to "know") the simple notions at all unless what is meant^{is} that we can understand true propositions in which they appear, and Descartes is later to treat the important notions as predicates, and predicates with entailments, in propositions, replacing both "minds" and "bodies" by "thing". No one, as I suggested above, would want to deny that Descartes thought, or that men think and are extended things, if these statements are in the general tongue; no one would want to deny that many sorts of thing were extended and were distinct from one another, distinguishable by specific shapes and kinds of shape. Declare "men think" to be meaningless because men are extended, and a class of statements is transferred from "men" to "minds", and all the other distinctions and attributions are unaltered. "Thinking" and "extended" do function as predicates, and very general predicates. Their universality is thus patent; and the universality is meaningless unless many different things can be the subject of the same predicate.

But does it not follow, as many have claimed, that the many instances of \emptyset could not be recognised as instances unless a first instance was recognised, and that we need to have the notion of \emptyset in order to recognise it in the first instance? And must not \emptyset be identical in each instance? I shall show below that the simplicity of \emptyset is delusory if \emptyset is a predicate term in ordinary use; but the "first instance" argument entails that prior to any experience of an instance minds are capable

of, or are so "natured" that they are capable of, recognising ϕ -ness. If this is what is meant by "having an idea of ϕ ", then the idea of ϕ is ϕ -ness as a notion, as that of which the mind is aware as we are aware in recognising later instances, or it is a power or capacity of which the mind is as unaware as we are until actual recognition takes place. In either case we revert to a doctrine of unconscious ideas, since (a) ϕ is not in mind as a "consciousness" all the time unless we are unaware of what is in our minds, (b) ϕ is only one of many notions which cannot all be in "consciousness" at any one time, while (c) minds or men can be aware of powers only in exercise, i.e. in recognising ϕ instances, or "thinking" ϕ .

The thesis that "thinking" and "extension" are in a special sense ultimate entities or mental entities, things out of which the things we recognise and talk about or the "complex ideas" we have in mind of such things are "constructed" depends upon a complicated theory of unconscious elements or ideas and/or powers, a theory which nobody has attempted to work out even in broad terms. We are led not to simplicity but to acute difficulties of understanding Descartes' theory of ideas, and of how such ideas are related to "minds" or "thinking substances" or to men.

8. What I am claiming is that all such questions are meaningful within and only within a framework of statements about men thinking, sensing, reasoning, doubting, doing science and thinking about thinking and thoughts. There is little in

the Regulae which is not in accordance with this claim, and the claim that notions belong to science, to thought as what is thought (and this, in the case of observation or of statements related directly to observable situations, is what is before me, object of my attention). In a sense all scientists and philosophers agree with me; but in sticking at the agreed level I am left behind by the scientific and metaphysical band-waggon, with its destination "Reality". There are probably millions of books and articles now in studies and libraries full of information about minds and ideas, as well as the books on matter and physics and mathematics - are we to dismiss them as nonsense?

Some small number I have read and understood; many I would never be able to understand, being what I am and the age I am; very few could I claim as within my capacity to write; a certain number I claim are nonsense. But the real point is that men write the books as a result of training, study and thoughtful consideration, whether they were doing physics, mathematics, logic or metaphysics; the multifarious activities are part of what we can call "History"; "man" and "thinking" are concepts which are central to our notions of the historically developing world, and until we have been presented with a coherent account of minds and ideas which can be related to our account of man-world-history there can be no question of claiming Reality for minds and ideas.

The model Descartes has in mind in the Regulae, the problem he is considering in the Regulae, has, I suggest,

nothing to do with the question of minds and mental elements and the relating of elements in or by minds. Apart from the fact claim that there are minds and there are bodies, whose predicates exclude one another ("It is certain that we are unable to construct any corporeal idea which will represent to us what knowledge is, what doubt is, what ignorance is, or what willing is qua volition" - i.e. we cannot draw knowledge, doubt, ignorance or willing), we are presented with truths and notions which are propositions and terms in logical, scientific or ordinary discourse. Descartes is doing two jobs at once: he is expounding the structure of a particular science, and at the same time trying to show that all the sciences, because they must have the same structure, can be amalgamated into one science. But he is unwilling to regard "structure" as in question; he wants to show that all sciences have the same matter or substance or content, that all thoughts are made up of the same sort of notions, that one set of elements will do for metaphysics, physics and the branch sciences of the tree of knowledge. Metaphysics, he declares in the preface to the Principles, is to reveal all the "clear and distinct notions that are in us", and for "in us" we need only write "that can be discovered by analysis of thoughts" in order to attain intelligibility.

The whole complex of theorems which is Geometry (at any stage in its development), Descartes thinks, can be shown to develop from initial simple notions. These seem

to include terms, axioms and definitions, though there is room for argument as to whether they are all "notions"; what he wants to do is to determine the simple notions which will serve for a science which is the whole of science, and of which Geometry is only a part. Thus he could reply to the criticisms I have offered of his metaphysics earlier that what I say of man is doubtless true enough, but raising this as an objection to his statements is as pointless as insisting on talking about quadrilaterals and polygons and rectangular solids when the question was of determining definitions of points and lines upon which the whole of geometry depends.

It is this which lies at the back of Descartes' irritation when critics of the Meditations go beyond his statements and developments of them to conclusions, and point to difficulties of extension - to what, for Descartes, he has not yet attempted to explain. The criteria are intelligibility and coherence in orderly development. Science is like growth or construction.

This rationalist programme is plausible in the case of geometry, where there is no recognisable terminal point, but even here the plausibility is limited. It is true that we cannot criticise a proof of a circle theorem by showing that it does not apply to ellipses - which strictly have no place in geometry until the problems of ellipses have been solved, i.e. until geometry has grown to include them. Historically geometry does show a piece-meal development, and Descartes' criticism of contemporary mathematicians is that they worked

in a piece-meal fashion. There will be a certain order in any section of mathematics if the section is in any sense science, but a well-founded science is ordered all the way through. Descartes believed, since his own case demonstrated it, that once principles of order were discovered it was easy to solve mathematical puzzles. The logic of order, instanced by mathematical series in the Regulae, is that of filling in the gaps in an order (finding the missing term) or of extending the order in a direction (finding the next term). This is clear enough; but it depends upon an initial ordered number series, and a problem- series with sufficient terms for a special order to be discernible, and it is difficult to find sciences in which we are presented with this double feature.

What rather might be claimed of other sciences is that an ordered section reveals a principle of order, which demands extension in two directions - onward, which is making new discoveries and embracing other sections, and backward, which is determining principles or first truths. It seems true that only if an order is apparent in our "knowledge" can analysis begin and the search for principles be undertaken.

On the other hand, we might well recognise that out of land-measurement, building and other activities of men, a familiarity with figures and the properties of figures can lead to a section of formal geometry in which it is true that figures are bounded by lines and points at which lines

meet, while yet the "leading to" is neither necessary to, nor a precedent of, the recognition of figures and their properties. If we "assume" a congruency theorem, we can prove many theorems; an unproven theorem may in fact be true as a statement and a goal for analysis and the attempt to prove it, even if we do not want to call it a theorem until it is proven; the move from one theorem to another does not follow from first principles, but seems to demand an acquaintance with circles as distinct from triangles. What we conclude with as a result of a set of triangle theorems is a set of true statements about triangles, all of which are just true and none necessarily true except in the sense that q is necessarily true if it is the consequent of a valid argument "if p , then q ".

There may at this stage be no statements about lines and points; an analytic procedure may lead us to talk of lines and points (we might well get to this stage by argument about exact boundary markings and corner positions), lines and points which we define in part by their mutual relations and in part by their relation to triangles. We need some such proposition as "all triangles are figures bounded by three straight lines intersecting at points" to get lines into geometry and from lines to triangles: these "connecting definitions" are both essential at various stages and a point of mutual involvement of meaning of defined terms.

The definition of points as having position but no magnitude and of lines as having direction but no width has

broken the hearts of pedagogue and pupil for many years: as first thoughts, unrelated to a science of geometry, they are utterly unintelligible, and the impossibility of giving a meaning to "position" and "direction" without reference to complex situations indicates why. To the geometer there is no problem - the definitions represent a negation of features of points and lines in constructions, i.e. in drawn figures. Nor is this unconnected with a transition from statements about measurable and located bodies with geometrical features to statements about regular shape, "pure" location and "pure" direction, extension and dimension. Geometry is thus describable as an abstract science of space - a simple description which presents a variety of problems when we try to work out its implications.

Without the connecting definitions, however, geometry neither starts nor develops; there is nothing in the definition of points and lines to give surface or figure or triangle. Descartes recognises something like this in Regula XIV. "This (discussion above) throws much light on geometry. For almost all geometers go wrong in conceiving quantity as having three species, line, surface and body. As we have said, line and surface are not to be conceived as really distinct from body or from one another. If considered simply as abstractions formed by the mind they are no more truly species of quantity than "animal" and "living" are, in the case of "man", different species of substance". He goes on to point out that length, breadth and depth are equally lengths, and "have a

real basis in every extended thing". This is to found his physics of body or extended substance, and what is to follow is the claim that solid geometry is physics. Subsequent criticisms of his physics can be presented as pointing out that his "extension" is equivalent to "volume", and that this is an abstraction from "body" or "extended thing".

The same sort of criticism can be levelled at those who claim "mass" to be adequate to bridge the gap between "volume" and "thing with volume"; but the chief point here is that the passage from bodily thing to length, breadth, depth, surface, line and point is intelligible, a form of thinking we can learn to do, and understanding this is understanding the reverse order, while the synthetic process, without the grasp of "bodily thing", is completely unintelligible. This is obscured, like much else, in geometry, because of the stress on construction, even in "Problems", as "making up of" rather than "marking out".

We can in fact dispense with "line" and "point" in much of our geometry - they are essential only for talking about the constructing of figures - and the relation between points and lines, considered in isolation from figures and constructions, has been a metaphysical puzzle since the Pythagoreans. It is difficult to see that "How many positions are there in a finite direction?" is a geometrical question, if it is a question at all; the paradoxes of points and lines are paradoxes which arise from conceptions of continuity and discontinuity, of geometry's "length as limit of the contin-

uous" and arithmetic's "numerosity of units of measure in the measurable".

Until we have given "point" and "line" a geometrical meaning, it is impossible to say that they are features of any geometrical figure; giving them a geometrical meaning involves concepts like "direction", "no width", "position", "termination", so that their "simplicity" is complicated; and while, once the geometrical meaning is established, they "apply" to all figures, it is impossible to maintain that we could not have the idea of any geometrical figure unless we had previously had the idea of point and line. This is as unlike arguing "no one can have the idea of 6 unless he has the idea of 2 and of 4" as the latter is unlike arguing "no one could have the idea of 1 unless he had the ideas of $\frac{1}{2}$ and $\frac{1}{4}$ because 1 is always two halves and 4 quarters".

The latter differs from the former as division differs from addition; addition and the number system seem to have priority, and it is true that we do learn to count and to add before we learn to divide. But must we? Our search for the foundations of arithmetic is a search for precisely the foundations of arithmetic, and if "1" and "addition" provide it, we have the foundation. I am not denigrating the search for foundations in declaring that this is all we have, nor am I declaring that "1" and "addition" are the foundation.

Taking Descartes' criticism of geometry seriously, we should argue that geometry is concerned only with statements

What we will have discovered is not (a) that we had arithmetical ideas which we did not know we had, (b) how we actually do arithmetic, or (c) a "scientific" way of doing arithmetic better than our old ways of doing arithmetic.

Our concern is not with establishing foundations of either arithmetic or geometry, but with general features of the structure of a science, and what either arithmetic or geometry seem to share with other sciences is that their structuring is a complicated matter of relating the propositions, or of ordering the propositions, which are stated in that science. Something at least of subject matter and order precedes the search for foundations, and when we begin to look for them we encounter both the difficulty of saying what foundations would be like and what foundations are in the particular science in question.

There is, in one sense, no difficulty about "principles", since any science will have numerous rules and laws; our difficulty is with "first principles", since it seems of them that they must be true, must be unprovable (or there are prior principles), and that the science must somehow follow from them. "Here is a first principle which is of no science" seems to be nonsense; and our procedure seems to be in accordance with this, namely arguing: "the propositions of this science could not be true or necessarily true as they are unless p" - whereupon others proceed to argue against "p" as first or as principle.

Taking Descartes' criticism of geometers seriously, we should argue that geometry is concerned only with statements

about the shape or extension of things, whatever other statements about such things are insisted upon by other sciences. It is true that on a strict interpretation of geometry we seem never to find things with geometrical features, find nothing perfectly rectangular, triangular or circular, but Descartes' point holds that encountered things are extended and limited and figured, just as they have position and move in directions; they are measurable, have measure in the same sense that geometrical figures have measure. If there were geometrical figures which were of existing bodies, those bodies would share many features with non-geometrical bodies, i.e. some descriptions of them would be exactly the same as the descriptions of non-geometrical bodies.

The concept of degree, which makes measurement meaningful and a number series applicable, not only applies to both but serves to relate the regular and the irregular, especially when the latter comes to be regarded as irregularly regular (one thing more nearly circular than another). Indeed, working with triangulations and trigonometrical measurements, we find (a) perfectly geometrical situations, and (b) find, with the claim as to observational discrepancy over large distances, an insistence that our "rational geometry" is falsely bound by attention only to the near; while in the case of a weight moving on the end of a fixed string, we need special instruments to establish that the path is not perfectly circular.

Geometrical truths are related to truths about the things we manipulate and measure and to our procedures in manipulating and measuring; certain terms are common to both. What Descartes is insisting on is that the notion of "body" is what converts "length" into "length, breadth and depth" - and hence geometry is primarily physics. What I am insisting is that three-dimensional extension is a feature of familiar things, that "length" involves direction, continuity and limit, and "length, breadth and depth", as a concept, "relations of direction", so that "body" analyses into a complexity of inter-related concepts; and the "geometrical world" might as well be regarded as the encounterable world pushed out of shape for scientific purposes as the irregular world be regarded as the geometrical world pushed out of shape by an Irrational Something interfering with Geometrical Reality.

One of the difficulties for rationalist science is precisely that the Irregular has full claim to existence and historical reality, and the irregular world has to be got rid of if the Rational is, in this case, to be Real. But calling geometry "rational", a science of reason or understanding as distinct from observation, does not reduce it to a science of "things in mind", of "ideas" as distinct from "things". Nor does it leave us with a science of "observation" which is neither rational nor intelligible.

4. What holds geometry and "non-geometry" together is the set of terms common to descriptive predications in both.

Descartes, insisting on "extension" here, is clearly right, and his insistence on three dimensional length as involved in "extension" is equally justifiable. In calling the three lengths "abstractions" he is insisting that they are predicate terms, not "things" - existing things are three-dimensional and so bodies. Saying that "the mind abstracts them" is conventional manner of speaking, using "mind" as the agent for all thinking. His illustration of a more obvious "abstraction" is that of "living" and "animal" in the case of "man", i.e. as predicate terms in the statement "a man is a living animal".

The insistence on "in the statement" is mine. Taken in isolation outside a statement like "a man is a living animal", which might look convincingly a first principle in a science of man, neither "living" nor "animal" are simple as concepts, and "animal" is both a substance term (with an article added) and an attribute term. Descartes is to encounter extreme difficulty with both of these terms. But, accepting the obvious, we can stress that so far as a rational science has application, in so far as its truths are applied with any degree of success or failure, to the world, the science must be known by the agent who applies them, who observes and calculates and manipulates.

The Regulae, I have argued, begin with the obvious acceptance of men as inquirers, men with various powers all of which must be exercised if there is to be genuine science.

Neglecting the complexity of "simples", and using the test of "unless" to check whether a statement is a possible principle, we can argue: "the science that we know could only exist if there were men able to observe and to reason, and what was observable had rational features". And what this means is just that men should be able to make true observation statements which have logical relations. Why does Descartes not accept this? No simple answer can be given, since he not only accepts it and proves it necessarily so, but he refuses to accept it and proves it necessarily not so.

On the side of acceptance we can refer:

- (a) To the first several *Regulae*, in which the inquiring subjects are "we", and to the first part of *Regula XII*, where the division is made as obvious between "ourselves who know and the things we are engaged in knowing".
- (b) To the letters to Regius, and the violent reaction to the suggestion that mind and body in man are "accidentally related" - man is a real man, a single substance, one agent.
- (c) To the letters to Elizabeth, wherein it is admitted that the proof of the substantial distinction between mind and body is presented without recognition or mention of a further truth that establishes the unity of man.
- (d) To the proof that mind is not a thing in the body as a pilot is in a ship, in the Discourse.
- (e) To the justification of the method of Doubt as a procedure to be employed by men, in respect only of certain beliefs, i.e. to the exclusion of moral, political, general social and religious "truths"; and to the connected use of "we" throughout the early *Principles*.
- (f) To the recognition in the Passions de l'Ame that the Soul cannot be understood as in any one part of the body rather than in any other part.
- (g) To the whole general scheme of medicine and science as an undertaking for man by man, designed to overcome ills, age and inadequate control over the physical environment.

- (h) To the recognition of a science of morals as well as of a science of medicine.
- (i) To all Descartes' experimental science, including anatomy and optics and related theory of perceiving.

His reasons for rejecting it are clearer and more complicated. He accepts:

- (a) A theological doctrine of an immortal and immaterial soul, which has to do something to be worth anything at all.
- (b) A traditional doctrine that the soul thinks, and he treats this most of the time as identifying the personal soul and the "rational soul" of metaphysicians.
- (c) A Socratic doctrine that the rational soul has only the faculty of reason and of intuition of the entities with which it is directly acquainted.
- (d) The necessity of "Socrates cannot doubt that he doubts if he doubts", and the Cogito version of this, based upon the scholastic thesis that "looking within" revealed a unique and permanent soul-self, subject of all acts said to be its.
- (e) The obviousness of a rationalist doctrine that thought begins with first principles or eternal truths and ideas or notions which are known prior to any sensory or imaginative experience - either of these being, on the general thesis, so unlike thinking or thought that they are substitutes for neither truths nor notions.
- (f) The validity of arguments, like those of the Theaetetus, corresponding to the Platonism of the Phaedo, that perception is not "really" veridical or "knowledge".
- (g) With qualifications, a materialist metaphysic of mixed kind, a legacy of Pythagoras, Empedocles and even Parmenides.
- (h) The rational structure of sciences, and of one science, in which "first thoughts" are to be treated as "initial thoughts of an individual" as well as "first in science" and "unprovable but transparently true".

We can add "and the like", since there is no obvious limit to the "reasons here". All of them seem to point in one direction - "man" cannot be a term in a first thought, because "man" is a complex (and complicated) term; and if "man" cannot

appear in an initial and intelligible thought about what reasons and reasoning, "man" need never appear in science as a thinking agent at all. If we begin with the facts to be ordered and the acceptance of man as a thinking thing, we have to get rid of "man" as agent to establish the first principles and rational science; if we begin with first principles, and a "thinking mind", then man can only figure as an object of science and not as a doer of science.

Descartes, I am satisfied, believed that there was no incompatibility between the assertion "minds think" and the assertion "men think" as principles stated separately; one can occur early on an ordering, and the other can occur later, just as we have definitions of points and lines and triangles at one stage, and add definitions of circles and ellipses later. On the subject-side of "thinks" he thus introduces later an "intimate union", a "real man", who or which is a single substance-agent; on the object side he has to do something parallel in order to get the materialist world of physics into the observable world. But just as he is unwilling to permit souls to be absorbed into men for theological reasons, he is unwilling to let the physical world be absorbed into the observable world for scientific reasons. The observable world is "unscientific", refuses to obey the dictates of reason. It is the refusal to let "thinking thing" really become "man" and "science" to become "what men think" which converts the familiar observable world (which includes

all non-absorbed things, a scientific world of
observable things. And we have no place for the absorption of

men) into an illusion of minds, while minds and mere extensions alone belong to what really exists. It is, however, extremely difficult to see how "intimate unions" are introduced at all unless our problem is of expanding principles or ordered truths to include man and facts about men and their observed world. It certainly would be difficult to convince anyone at all that we had determined principles of all science and could not relate the principles to any statements about men and birds and beasts.

It is, argues Descartes, the idea of "body" that enables us to give meaning to "point", "line" and "surface"; in no sense do we make bodies out of things called points and lines and surfaces. Similarly, we do not make rectangles out of triangles, and circles out of either. When we frame an account of a chiliagon, imagined or not quite imaginable, our account will contain terms like extension, side, number, and specific number. All our accounts of figures will contain "extension" and vary the attributes which distinguish one figure from another. Gross bodies have attribute-terms in their accounts which do not appear in geometrical accounts. If geometrical bodies are extended substances, we do not get from one substance to another by adding substances together, but by varying accounts, and we can call this adding or changing attributes in thought. "Complex and simple" work in terms of notions, not of substances and their relations. It is only when we want to relate geometrical bodies and non-geometrical bodies, a geometrical world and an observable world, that we have to raise the question of

substantial relations, which are possible only if both kinds of thing exist in the same way in the same world. The question "Cosmogony, cosmology or useful hypothesis?" must be asked, and the answer determines what else is to be said. If it is "cosmogony", then we have to explain how the regular bodies became the irregular; if it is "cosmology", we have to explain how the regular constitute the irregular; and if it is "useful hypothesis", we have to show that it is useful, that it explains without any question of the regular bodies existing in fact as do and in the irregular bodies.

These clearly enough are problems which concern Descartes, and the distinction between the geometrical bodies which are to explain, however they do it, and the irregular bodies to be explained, depends upon a distinction between imagining or conceiving and observing or discovering, although both what is imagined and what is observed are "thinkable". A claim that in "perceiving" we are really "imagining" is irrelevant to any real issue here. If minds are to do science as we know it and Descartes did it, then minds must be able to observe, and the condition of this is that they should be capable of sensory perception. They have, in other words, to be able to do what we say men do. If our first principle is "minds think of extensions", then at some later stage we need "men think of particular extensions like horses and houses"; and all that we need to do is to add to "thing which thinks" the relevant predicates which convert "mind" into "man", expand "thinks" into its species, and recognise all "objects". Thinking things, men, can

observe. Unless something like this is true, we can give little if any meaning to "human bodies" and none whatever to dissection and anatomy. We shall see below that the expansion of "thing which thinks" into "man" is completely in accordance with Descartes' logic of substance as an analysis of things or of thoughts.

Can we, however, ask the question "Cosmogony, cosmology or useful hypothesis?" of the Cartesian soul? The answer is not so clear as in the case of "bodies", but Descartes does seem to say "yes" to all three. God creates a soul and "infuses" it into a body which it informs during the uterine period, and the body becomes human and begins to think at the same time; the soul is a substance which exists within the human animal body and can by exercising its freedom negate even the senses - whatever they may be - and act purely thinkingly in complete independence of the body, which equally acts in complete independence of the soul when the soul is not attending to what is going on around the body or in the body (or to what the man is attending to and doing); and the final vindication of all the principles, which include definitional statements about the soul, will be the extent to which problems are solved and facts explained. But the keynote is mind-soul as independent substance, and this Descartes never doubts whatever may be the consequences to facts or to science, and until the intimate union is proven - a proof which is "harmful" to the thesis of substantial independence, as Descartes admits to Elizabeth - the mind is a thing which knows nothing of

bodies. What is the mind like? It is the subject of all the statements which I can make about myself which have "thinking" as the predicate-verb. But we have to restrict the species of "thinking", reject "sensing" by treating it as "dreaming", and (if the ambiguity of Meditation II is resolved by the doctrine that images are corporeal) then reject even "dreaming-imagining".

What remains at this stage is difficult to determine, but the point here is that if it is in fact true that I am an intimate union, a man, then "I" is co-extensive with "the man that I am", not the man or the body which "I occupy". Whether or not this is a first truth, it is a truth; it is embodied in ordinary usage, and as such is used throughout his writings by Descartes. It is because this usage is distinct from the use of "I" in "I am a mind", although it is not in the least incompatible with the use of "I" in "I am a thinking thing", that we have to manoeuvre in such strange fashions when we attempt to clarify or to criticise the "mind" thesis. "I am a man" is completely in accordance with the thesis that an infusion of soul into a foetus occurred and thus a man was created, and in this sense "I am a man" has been true, whether I thought it or not, from the mysterious moment when I came into being. In this sense "I am a mind" is false, and "I was a mind" is equally false.

It is for this reason that when the statement "I cannot understand what you mean by 'a mind thinks'" is answered by "you must understand, because 'mind' is equivalent to

"I who think the question asked", we seem to have been told nothing at all. Similarly, when the protest as to inability to understand what is meant by ideas is answered by "You understand what is meant by your question, and this is having ideas", we seem to have been told nothing at all. What is required is information about minds and ideas which enables them to be treated as entities or things which are different from the man who asks questions and the things he thinks he is asking questions about.

Since I want at various stages to claim that the mind, as Descartes describes it or purports to describe it, could not do what it is claimed to do, i.e. what I recognise that I am able as a thinking thing to do, because the description Descartes gives of thinking seems flatly impossible as a description of the thinking I do, and since the distinction of mind and body as substances is vital to any Cartesian claim as to what is ordered and by whom or by what in the enterprise of ordering any or all science, let us look at this with some care. If it is geometry that is being ordered, then it matters not at all what we are who do the ordering - all that is required is that "we" should have acquired a knowledge of geometry. But any science which demands observation is different, and any science concerned with man is different again - the latter will contain statements about "ourselves who know".

The vital point in the development of the Cogito is the rejection of "I am a man", i.e. of "man is a thinking thing". It is rejected as not clear and distinct, as complex

and complicated, and the rejection amounts to a refusal to consider it. "Strictly speaking", he is to admit, what is certain is that as a result of an argument that doubting is possible and operates in the ways presented, all that Descartes can be certain of, all that anybody who follows the method through can be sure of, is that he is a thinking thing - whatever else may be true of him. Descartes wants to prove that he is an immaterial and immortal substance, but until "doubt that there is anything perceived, even when I think I see my arms and legs and trunk" is converted into "It is absolutely certain that I see nothing existing etc.", nothing is proven of this. The back door is left open for the proof of God's existence and goodness to establish that Descartes is not mistaken in believing that he perceives, for science thus to be founded as a science of existing things, and for science then to close the door once again.

Yet the truth "I am only a thinking thing" is a first truth of metaphysics, not of science. Framed as Descartes frames it in proving it, it is a truth to a thinker of it, and cannot be universalised on the side of the subject; with the doubt-rejection of sensible existents goes everything except the isolated thinker, including the thinker's body. The soul-thing's theme song is not "If I were the only thing in the world" but "I am the only thing in the world". But of course it is universalised, through the use of "I" and "we", and the operation of the Meditations, like the Regulae, as directions to, and arguments directed towards,

readers. The Meditations opens with an autobiographical sketch in which "I" is Descartes.

In the first two paragraphs of the Synopsis to the Meditations the "doubt" is declared (a) to deliver us from all prejudice, (b) to provide a path by which the mind can withdraw itself from the senses, (c) to make it impossible for us to doubt truths later discovered, and (d) to culminate in the second Meditation in the mind's supposing "that no object is, of the existence of which it has the slightest doubt" and finding "that it must itself exist". It is on the universal side that argument produces "minds think and exist"; in terms of particular experience the doubting "I" doubts and rejects and concludes "it is certain that when I think I exist". Only by the declaration "I am a mind" can the experience of the Dubito be declared to be the experience of a mind, and "I am a mind" is a "first thought" as presented here only in the sense that this is the first time in history that it has been thought and that Descartes was the first thinker of it. But if I am in fact a man, even an intimate union, the experience is mine, and the conclusion false, and there is, on the fusion-thesis, no time in my history when it would not have been false. I, as a man, cannot cease to be a man to have a special "experience", although I can see the force of the argument, see that "if I doubt that I have a body" entails that I must think "I have no body", just as "I doubt that I have a body" entails "I can doubt that I have

is that I would be other things, substances, etc.

a body"; but I can also see that saying "I have no body" is not doubting, while doubting that I have a right leg (which seems meaningful as a doubt because I know what it would be like if it were true that I lacked a leg) has no effect whatever upon my actual anatomical structure.

As I have argued above, while we treat the Cogito as an argument which we understand, entailed by a procedure which we understand, giving some information about us, it is intelligible and acceptable. We can agree that "I am a thinking thing" is in some sense specially important, e.g. if it were false I would not be a scientist as I am. The counterfactual is a counter of the factual. That "thinking" entails "not not thinking" is true. That we are under certain circumstances aware that we are thinking, and can, as adults, say that it is thinking that is going on and that we are thinking, is also true. But the claim that thinking that I think is the result of a self-contained intuitive process of perceiving my thinking or my self thinking, like the claim that trying to doubt that I think and failing is a special sort of self-revealing experience, which reveals a mind to itself or a mind to a man who is incapable as a man of having the experience, is at best false.

We conclude with a thought that I can think and a thought that I cannot think, and, in the idiom of personal pronouns, two facts about myself - not my self. What Descartes hopes to establish from "I exist necessarily as a thinking thing" is that a world of other things, substances independent of

thought, can be proven to exist. "I exist" is a first truth in an existential or metaphysical science, as distinct from sciences which are merely "rational thoughts". In order to complete his undertaking, once "I am only a mind which thinks" is accepted, it is necessary (a) to show that this is meaningful and false, or (b) that it is meaningless, unless "mind" is another name for what is indicated by "I". The "intimate union" thesis serves both ends, and it is throughout Descartes the intimate union who is seeking and advancing proofs in terms of notions and relations.

There is a world of difference between us agreeing to suppose that there are things which are only thinking things (one class of notions in the Regulae) and trying to develop this proposition into science and a world as we know them, agreeing to suppose that these thinking things are conscious of themselves as thinking things, and only as such, and agreeing to suppose that we are such things if the last is to enable us to say that what is true of us is true of the things. We might say that supposing we had no bodies, that no bodily statements were true of us as we familiarly recognise them to be true, and following out the consequences of the supposition, would provide an interesting way of trying to discover something about ourselves; but the game is difficult to start ("we" ceases to be meaningful immediately) and impossible to continue without our language exploding into special uses and quoted verbs with cognate objects (typical philosophers' mind-talk) because the bodily statements have complicated

entailments. They belong in accounts of the features and behaviour of men and of animals and of men as animals, and in rejecting them we dislocate our language, and so our thought and the world as thought. The suppositional method has the virtue of revealing such features of thought and language, but to Cartesians the virtue is a vice.

It is from the second supposition, that there are merely thinking things which are conscious of themselves as such, that philosophers derive Self-consciousness, Consciousness as necessarily Self-consciousness, Minds as essentially Self-conscious, and a form of Self-knowledge which is not really knowledge as science is knowledge - the result of our Knowing is not something that can be stated or described. So we get the whole mystique of Selves which are Objects only as Subjects, and Subjects only as Objects.

The (unacknowledged) core of this position is that if "only minds can think" is true, this must be thought by a mind, and the mind must be aware of itself - how else could it think the thought? If minds could think only un-selfconsciously, there would be only science qua what is thought, and we could not talk of minds at all. In so far as "minds" are purely "thinking subjects", I propose to argue (a) that there is only science qua what is thought, and (b) that we cannot talk of minds at all.

Let us, however, clear away one confusion first. Although *prima facie* we cannot argue to or about what is not object for thought, arguments are advanced in terms of claims as

to "personal experience" and "subjective experience", both treated as our experiences of thinking and feeling. With the introduction of "feeling" we have many questions, of fact, of terminology, of scientific ordering and philosophical untangling. But in so far we have to talk of feelings as experienced by men and reported by men, or in so far as they can be discussed (i.e. thought) as features of the subject of "thinking" statements, feelings are irrelevant to the issue.

Hume, as noted in the introduction, rejected the mere self-substance-thinking-thing. Bradley rejected it. Both seem to run into insoluble problems of personal identity. Fichte seems to have made the "thing" and its self-identity the core of metaphysics and of the universe, and to have denied that it was the individual person, though he thought that the individual must be deducible from it¹. Hegel declared it to be purely universal, Thought as Thinker. Kant - Kant did many things with it, including making it into Twins called Noumenal and Phenomenal. None of these help us much, although they seem to be disagreeing in unison with Descartes.

But Descartes, when he denied that substance and existence were directly known, denied in consequence that self-consciousness was possible for any thing at all; the Self must infer Itself from an act qua attribute of Itself. Nothing of this appears in the Meditations, if we look only at the surface; only when we have examined in detail his thesis with regard to

1. See Wallace's note, p.393 of his "Logic of Hegel".

"substance" and "thing" in all thoughts, as we will below, will we realise how the logical principles learned at La Flèche are the first principles of metaphysics and of science, and are to justify the claim that "a thing thinks" is a possible thought and an account of the "I" as mere subject.

Suppose, however, that we take the philosophically peculiar step of declaring that men think, that thinking things are men, that men do science. What follows?

If I am a man, then I am a thinking thing; "I am a thinking thing" at least implies that I may be a man. Stating or thinking that I am a man entails self-consciousness. I have to know, have to understand, that I am a man. To understand what a man is we need to understand what an animal is, argues Descartes, and we should be led on to understanding what other things were - we should have to go on to "inquire into" what other nouns meant, indefinitely, and Descartes does not possess "enough of leisure to warrant (him) wasting (his) time in subtleties of this sort".¹ Why these matters should be subtleties he does not explain, nor what matters of grave importance necessitated such haste in rejecting intelligible answers.² The real point is, apparently, that it takes a long time and much labour to come to understand the variety of accounts which constitute an answer to "what is man", and something similar is equally true of all our ordinary nouns although

1. Meditation II.

2. In Regula XII the reason for not explaining all about the soul and its relation to the body is that the discussion is too limited to admit the explanation.

it seems scarcely the case with "complex ideas". Descartes is about to put his finger on an essence, a thing with an essence, and a noun which can be understood in an intuitive flash. But unless we are talking to an inquisitive infant, it does not take very long to explain what we mean by "men think" or "men do science"; unless we are infants there is no long process of "inquiry" necessary before we know what we "really mean" by these statements; it takes much longer to work out why we should turn our backs upon the knowledge we have painfully acquired in order to discover what really is or really is so. Descartes has discovered a mode of argument which establishes to his satisfaction a truth about himself; he has not ceased to be Descartes and become a mind conscious of its essential self.

Self-consciousness is entailed by any statement including "I"; it is indirectly entailed by "men do science" if this is a scientific thought and stated by a man, any man. But what this means is not that the man who makes the statement must have manoeuvred himself or his simple or simplified essential self into a corner and "looked" - Hume's complaint is not that his self always manages to get away when he tries to look at it. What it means is that anyone who understands the statement must be able to recognise other men as men like himself, doers of science like himself, as thinkers in the same sense that he is a thinker. Men do in fact use, and so can use, "I" of themselves as a pronoun, just as they can use "it" of an object of which they know in fact almost nothing or

of which in fact they could write a volume. Recognition of oneself as a man, like recognition of any thing as anything, is not an initial act, a first thought, and learning to use "I" is not a matter of a foetal self-reflection, a mental mirroring without a mirror.

In stressing "learning to use "I"" no issues are being avoided - no claim is made that this is a simple matter, and what we are avoiding is the established technique of masking factual ignorance by a definitional truth.

Descartes rejects "man" and "animal" because they and their essences or definitions are complex and inter-related; he is looking, just as he looked in the Regulae for simple notions which are pure and unalloyed objects of an essential act of "intuition", for an essential act (self-intuiting) and an essential agent (spirit), each wholly grasped in being grasped at all. Agent, act and object cannot be described - they can only be "apprehended" and named. Must not complexes be of simples? And must not simples be only nameable?

Men as scientists can study men as scientists; the subject of "thinking" in its specific and multifarious senses (inquiring, doing science, studying Descartes, discriminating mauve from violet) may be the object of study of science, of a host of sciences - anatomy, physiology, biology, biochemistry, neurology, economics, politics, sociology, psychology, and the various schools each claiming one of these labels as its own. That most elevated of metaphysical propositions, "Subject and Object are One", achieves an intelligible form: "What

thinks is what is thought" becomes intelligible when species of thinking replace the universal blur of "Thought" and "Thinking", and we recognise that science qua what is thought of man as inquirer does not need a thinker over and above the inquiring man. Whatever we discover to be true of man will appear as science, whether as characterising the inquirer or what is inquired into, because for science and for thought there is no distinction.

I am using "science" in a special sense, an unfamiliar sense; I am using it as Descartes uses "Scientia", as others have used "Knowledge". To bring "sciences" into relation with the general principle we have to recognise distinctions between facts, laws, theories, between different sciences and different subject matters; we have to recognise distinctions between physical sciences, biological sciences, human sciences, mathematics, logic and - metaphysics. But the differences will be discovered by doing the sciences, getting some sort of acquaintance with the sciences and discovering what the "concepts" of the sciences are; the concepts or notions will be "acquired" before they are "clarified" or "illuminated" by critical consideration of the sciences, of relations between the sciences, or of relations between the fact statements of different sciences.

All of these activities, observing and theorising, thinking about theories or relations between theories, between theories and facts or facts and facts, doing logic and metaphysics in thinking about what has been thought, are what

we mean by "thinking" as men do it. "That man thought p", whether p is true or false, brings thinking into history - Cogitat works as Cogito works. The dated thinking of p, of the thought p, belongs to the history of science; p as true belongs to science as p, to a science to which p belongs; p as false belongs to no science, except as a component in "he thought p" which belongs to a science of "thinkers". Grammar, logic and metaphysics belong not to the science of thinkers; they are related to all sciences. Being self-contained and yet necessarily related to something else is not, in the case of these sciences, an impossibility, a contradiction. A "science of science" is meaningless unless there is the science to be studied, just as a science of things is meaningless unless there are things to be studied.

We get truisms and trivialities and tautologies here with the greatest of ease, because we have long taken for granted what is being presented as a "principle". Descartes' enterprise in ordering Scientia is intelligible, since he knows what he is ordering - the result is simple failure. His solution had been attempted by Socrates, and rejected, shown to fail, by Plato and Aristotle. At the universal level "there are thinking things" and "there are extended things thought about" are obvious truths, obvious to any human being who understands the terms used. If Descartes thinks these thoughts, he can relate them to other thoughts, and attempt to order science and sciences. It is only the thesis that the first thinker must be contained in the first thought

as subject known completely by itself as subject that produces unintelligibility and immediate contradiction, e.g. that "I think" is a true thought, and "bodies are extended" is only or may be only a relation of ideas.

The real foundation of Descartes' metaphysics, I shall show in the next chapter, is the assumption that a logical proposition "all attributes are of a substance" is an initial thought, intelligible as it stands, a fact statement about "things in mind", and that simple attributes can be added to the idea of "substance-thing" to get all ideas of things actual or possible. Logical analysis of statements is taken to reveal what really goes on in minds and what occurs as content of minds. A psychology of sorts replaces logic, and "I", as thinking thing, must be simple and naked "thing-substance" because that is all that can be named or indicated by any noun or pronoun.

It is the "psychologising" of thought that demands a thesis with regard to actual first thoughts, a thesis that is backed by a search for essential empirical self-experiences. Like a ghost in the shadows lurks the belief that the self, like any "substance", is simple and unchanging, or all our uses of "I" (and nouns and pronouns other than "I") are meaningless. When we accept "man" as thinker, our uses of "I" and "self", and all Descartes' conversational writings, are clear enough, whatever particular problems may arise. But, the argument is advanced, when I say "I think", "man" is not contained in the thought at all; I have no notion

of "being a man" in mind, and when children say "I think" they may not have any idea that they are "men".

It is true that we are not born knowing that we are men, that many men in fact never know that they are men. A child may learn to say "I am in pain" before he learns to say "I am a human being", "I am a man", "I am an animal". Nevertheless it is true that he is human, and whatever meaningfulness we may feel is involved in statements by human beings about a smear of feeling of "self" which is a sort of overtone or flavour to a feeling of "pain", our inability to consider these "experiences" (or even those of "pain") without using first personal pronouns does nothing to show that "primitive experiences" are experienced in the form "I am affected..." or "my self is being affected". The use of "my" is indicative. A doctrine of "social reflection", which accounts for the use of "I" along with the use of "you", "he", "we" and "they", gives a meaning to personal and to pronoun, as well as being intelligible and fitting historical facts - the "subject" is a developing thing, whose "uses" correspond to phases of historical development as a social creature. The doctrine of "internal self-reflection" fails to do any of these things; its logical outcome is a solipsistic denial of meaning to "pronoun" and use to "you" and other pronouns, and correspondingly a denial of meaning to social discourse in which "person" has a meaning because "persons" has a meaning, and "possession" also has a meaning.

The complex procedures whereby "person" as a social

concept is converted into an antithesis to "social" ("x is a personal matter" into "x has nothing to do with anybody else") and finally into "purely private" as contrasted with "public", cannot be considered here. But it seems nonsensical to claim that a child is born knowing that its name is "I", and if we can stomach the thesis that because the child does not know it something in the child must know it; that it thinks, recognises thinking qua thinking, recognises that thinking is an attribute and, with or without conscious formulation of a necessary truth that all attributes are of a substance, infers that a thing thinks, exists and is the correct bearer of the name "I", we can stomach anything. And even if we can we are not out of the wilderness. What is being made is an historical claim, not a philosophical claim, and if we argue that the "infant mind" grasps itself completely in the inferring and naming (or "reflective apprehension") of itself as "substance which thinks", or by any other process, we are claiming that the "mind" is all that it knows it is: nothing more can be said or need be said, by it or by "us". We have to endow it with the knowledge which we have to analyse the knowledge and thus to determine "simple notions" which fill the mind so that it can think our thoughts; and then we have to do physiology and physics to provide our bodies and our circumstances and by a miracle or a mystery convert the I-mind into the I-man. When it is shown that the sort of thinking which can be done with simple notions as content cannot be the thinking we do as men, the I-mind and the I-man fall as completely apart as do rational science and empirical science.

What holds rational science and empirical science together (apart from common terms, logical relations, and "explanation") is that they are thought and thought by the one agent, the one thinking substance, and the substance in question is man the rational observer. In more elevated terms, the concept of "man" is central to the human structuring of the universe, and "the human structuring of the universe" is the activity which unites all sciences into Descartes' One Science. Thus the ancient "Man is a rational animal" becomes more than a useful example of a definition that fails to satisfy strict logical criteria of classification and definition, and Descartes' two theses appear, in relation to this, as (a) reasoning is done by a rational soul-thing in a bodily machine, and not by men, and (b) reasoning is done by a man, who is a fusion of soul and animal. What fits both theses into History is that they were thought by Descartes; what denies at least one entry into Scientia is their contradiction. What determines whether either one of them is to enter Scientia is their relation, as thoughts, with what also is thought.

The initial test is coherence, but the coherence is of Scientia which includes facts as well as principles. My stress on Descartes' difficulties over establishing the "actuality" of his necessary truths must be repeated. At the end of the Principles which he could not complete, Descartes moves from "possibility" to "moral certainty" to "absolute

certainty" for his thought-system with the aid of God and his goodness in providing us with a faculty of distinguishing truth from error, and what is at stake is the establishing as true of the observation statements which are to be explained. If magnets and their effects on iron things, if fire, ice and the freezing of water, rainbows and planets and tides, cannot be observed, there is nothing to explain and nothing to show that "ideas of particles" are more than ideas. The beast-machine thesis is meaningless unless beasts are observable animals, are the beasts of the familiar world; anatomy is meaningless unless animal bodies are observable; the science of medicine and of man is nothing unless we note, and are related to, men around us as social and moral animals. The principles are to develop into the trunk and the branches and leaves of Scientia, sciences of medicine and mechanics and morals, and sciences of man for man. We are men, the men who will be (at least more) completely in later science, and as men we are ordering our knowledge. What the Cogito entails is that we cannot call ourselves "men" in the first principles; and that is all that it entails.

Chapter VII.

Subject, Substance and Thing.

Aristotle begins with true propositions in ordinary language, with logical distinctions within such propositions, and leads on to a consideration of (a) types of proposition, and (b) the types of proposition which will compose an account of an individual thing. (This is to be justified in the final chapter).

For him, "S is P" or " ϕx " would be formal propositions, or functions - S, P, ϕ and x would be variables.

Descartes claims to begin with attributes (values of ϕ) and to argue to a subject. In " $\exists \phi$ entails $(\exists x)(\phi x)$ ", x is treated as a constant.

But this entails that there is one use of "substance" and one substance. This is incompatible with the claim that there are two distinct substances. By writing " ϕ " for "thinking" and " ψ " for "extended" we can indicate what is involved.

By treating ϕx and ψx as substances named "mind" and "body" Descartes is able to treat them as occurring in modes. This works, however, for "thought" and "extension qua body", not for "thinking" and "extension qua extended". And ϕx and ψx are unanalysable.

2. (p.253). If "mind" is the name for ϕx , and "body" is the name for ψx , we cannot say "minds think" (which would demand " ϕx is - or does - ϕ ", nor "bodies are extended" (ψx is ψ).

If "mind" is the name for x, and not for ϕx , then we have no means of distinguishing "mind" from "body", which is also the name of x.

If x is a variable, then the difference between ϕ and ψ as predicates or simple notions, even in the framework of Descartes' confused idea of definition and division, cannot make ϕx and ψx into exclusive classes.

3. A section is devoted to a detailed discussion of Cartesian doctrine, to show how vital the logical confusion is to the plausibility of that doctrine. Definition, classification and formal rules as principles are discussed in this context.

4. (p.286) Existential claims in relation to Descartes' definitions - "existence" is simply assumed.

5. The discussion is related to Aristotle and certain metaphysics. Descartes' Socraticism is stressed.

"Mais quoique ne faisant qu'un avec la substance, les modes et les attributs en diffèrent cependant, d'une différence qui, pour être simplement modale ou de raison - modale, et par conséquent non-réciproque entre le mode et l'attribut principal, de raison et par conséquent réciproque entre l'attribut principal et la substance - n'en doit moins avoir un fondement (fundamentum in re). Ainsi tout se concilie dans la conception de la substance, mais à condition de maintenir à la base, après l'analyse la plus poussée qu'on voudra des modes et attributs, cet irréductible résidu qu'évoque le mot chose".

Jean Laporte. Le Rationalisme de Descartes. p.185.

"On sait d'ailleurs que, dans la langue de Descartes, chose est exactement synonyme de substance. Et, par exemple, en comparant les textes Latins de Descartes avec les versions françaises revues et approuvées par lui, on trouve souvent substantia traduit par chose, ou res par substance. Ainsi dans les Principes I.8.; cf. la traduction latine du Discours; rem quamdam sive substantiam".

Op. Cit. p.185 fn.

"In what would you say lay the first metaphysical genius of Descartes?

In discovering distinctions which previous philosophers had failed to make. So he recognises that Aristotle had distorted all philosophy by not seeing that Mind and Soul were completely distinct.

In what would you say lay the second metaphysical genius of Descartes?

In denying that the distinctions which others had failed to make were distinctions at all, as soon as opponents had been refuted and something positive was to be said. What could be more ingenious than to refute a philosopher by insisting on "A or B" as a substantial disjunction and distinction, and establishing one's own case by insisting that "A or B" really means "A is identical with B and it does not matter which word you use".

(A Dialogue that needs to be written).

"Je n'ai jamais employée que...fort peu d'heures par an (aux pensées) qui occupent l'entendement seul..."

Descartes to Elizabeth, May 21, 1643.

John Laporte. La Nationalisme des Descartes. p. 185.

"On voit d'ailleurs que, dans la langue de Descartes, chose est essentiellement synonyme de substance. Et, par exemple, en comparant les textes latins de Descartes avec les versions françaises révisées et approuvées par lui, on trouve souvent substantia tradit per chose, ou res per substance. Ainsi dans le Principes I, § 1, la traduction latine de l'écrit: res substantia sive substantia.

Op. Cit. p. 185 m.

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"Le malin génie employé que... fort peu d'années per on (aux pensées) qui occupent l'entendement seul...."

Descartes to Elizabeth, May 21, 1643.

Subject, Substance and Thing.

The first section below is intended to provide a form of summary of a central argument, in order to make clear some guide posts in a discussion of questions which are always far from clear as they arise in Descartes' writings.

I am concerned to argue that, given a language in which true fact statements of the form "X is Y" can be made, we are able to make sense of many of Descartes' central statements about substance (or about what he means by "substance", since in an important sense the word belongs to a logical or metaphysical vocabulary, and so to a "meta" vocabulary, and cannot appear in ordinary fact statements at all - nothing can be said of it as something can always be said of chalk and cheeses). This "making sense" demands that we identify "subject", "substance" and "thing", but we have as well to restrict "subject" to "subject of a particular class of statements". This class I have labelled fact statements, and the values of X will be limited to the commonly "named" existing things of which we speak in non-technical discourse, or those things which scientists refer to by using common nouns after more detailed examinations than we ordinarily make. Of any such things I shall claim that they are qualified in various ways, and related in specifiable ways to other things, and that statements of quality or relation will be verifiable by accepted techniques. How this leads on to the question of Categories is to be a major later consideration.

"Things" thus appears, as in ordinary discourse, as a class term for cats and dogs and trees..... But I have

indicated that Descartes has several uses of the word "substance", and in one use the substance-subject-thing is declared to be unknowable but necessarily inferrable from a "perceived" attribute; and this involves our having the "idea" of subject-and-predicate, so that we are able to recognise predicates to be predicates when we "apprehend" them, and able to judge correctly that when we do so there is a thing with the attribute in each case. We not only recognise ϕ but think "there is a thing which is ϕ " in each case.

This is, if it is to be taken literally, very different from the assertion that if ϕ is an attribute, then there is a thing (a man, a mountain or a.....) of which ϕ may be truly predicated, although such an assertion may quite well be formulated as "no attribute is of nothing". If we do, as I propose to do, take the account literally, then we find special difficulties when Descartes insists upon a distinction between thinking-substance and extended-substance - difficulties that must arise in the case of any attempt to distinguish between substances on the doctrine that they are inferred from their attributes, that subjects as inferred from the perception of predicates.

The difficulties, moreover, are increased by Descartes' attempts at special definitions, especially of "thinking" and of "ideas", and the uncertainty which attaches to his various uses of the defined terms. Nor are we assisted by a series of arguments which depend upon a variety of "necessary

truths"; and here we have not so much a question of finding what justification Descartes has for using the truths and for claiming them to be necessary, since he offers no justification or appeals to the natural light, but of sorting them out and finding what justification there is for regarding them as either truths or necessary.

If, however, we accept a language of the kind indicated (and French, English, Greek or Latin satisfies the requirements) then many of the necessary truths follow directly. Each of these languages employs common nouns in making fact statements about distinguishable things; each of these languages is thus classificatory and expands, for an Aristotelian, into a scientific classification of things, or a system of such classifications, and the logical criteria for this classification and its expansion are already clear in the use of the language. For Aristotle, I shall argue, "S is P" is the form of propositions whose terms are real, have intension and extension, and all subjects of such propositions will have existential entailments. Thus any true proposition "x is y" will entail that a thing of the kind X exists - that there is a thing of the kind X which is y; and for any value of X so appearing in a proposition it will be necessarily true that "X" can be given a meaning by a statement of the form "X means Z" or "All X are Z"; and "Z" here may be a complex term.

That the same argument could be used of predicate terms is a further question; at first sight while we treat predicate terms as attributes, these can be classified only into classes of attributes - although this will give us univer-

sal propositions, as will any classification; but Aristotle accepts conversion, and this means that any predicate term will function as a subject term. Thus in his "first figure" middle terms are both subjects and predicates - which is sufficient to show that the interpretation of universal propositions as having no existential entailments is quite un-Aristotelian. What I want to argue later is that the initial distinction between subjects and predicates is in relation to their function in syllogism, not in relation to an analysis of isolated propositions in a search for "ultimate elements".

It is from the logic of syllogism that Aristotle moves, and has to move, to a consideration of categories, and not vice versa as subsequent philosophers assumed. The problem of categories is primarily intelligible in relation to propositions which appear to be fact statements yet which will not function in syllogism with fact statements. This leads on to the further categories-question connected with the system of propositions which we regard as an account of a thing, and the false interpretation results in an absolute distinction between "the thing" and "its account" which is never intelligible.

1. Descartes appears to be arguing that if ϕ is an attribute, then it may be asserted that "wherever ϕ , there is a thing which is ϕ ", this being treated as if it meant " $(\exists \phi)$ entails $(\exists x)(\phi x)$ ", where x is not a variable but a constant.

If this is taken to be an analysis of ordinary propositional assertions which provides us with an alternative form, then it suggests (apart from obvious quantification

difficulties) that ordinary statements and arguments can be readily transformed, while our classification of things will be the same as an Aristotelian classification ; any ordinary assertion ("A rose is flower") can be re-written ("There is a thing which is a rose and the same thing is a flower") provided we can further elaborate the new formulation in such a way as to get rid of the nouns. We should have to arrive at "There is a thing which has the attributes abc ("rose" attributes) and ab are also "flower" attributes". Roses can still be planted in flower beds and entries made in botanical note books.

The final formulation demands the conversion of "rose" and "flower" into attributes and adjectives; the intermediate position simply puts "rose" and "flower" into the predicate. The latter is obviously not enough; and by using symbols I have indicated only what the conversion would be like if we could make it. It is when we try seriously to give an attribute account or adjectival account in which more is done than giving the noun an adjectival form ("roseish" for rose) which may already have a different use, that we begin to discover what is involved in giving values to variables in special calculi, in putting into effect the claim that we "construct" a world of things from perceived attributes, or in making good the claim that our "ideas" of things are complexes of simple notions of "attributes". There is at least no obvious point in surrendering nouns and substituting "thing" for each, although

it is clear enough that instead of any noun in at least single statements we can write the one word "thing". And it is clear that if we can give a meaning to "there is an attribute" (where "there" is locational) we can give a meaning to "there is a thing" if we can give a meaning to "the thing has an attribute". Much post-Cartesian philosophy can be described as endeavouring to give a meaning to these three statements.

But what we have to reconcile with the claim that we can assert " $(\exists x)(\phi x)$ " wherever ϕ , and treat x as a constant, is the Cartesian claim that there are two predicates (thinking and extension, which I shall denote by ϕ and ψ henceforth) which are of a special kind or status. As determining summa genera, ϕ and ψ are class-terms or class determinants, and Descartes wants to treat "thing" as substance and ϕx and ψx , ϕ -thing and ψ -thing, as substances. Both figure as the subjects of statements, and in fact the only real subjects of statements, and we are then able to dispense entirely with our original $(\exists \phi)$ and $(\exists x)(\phi x)$ and to write directly " ϕx is a" (where a is an attribute other than ϕ or ψ , and indeed any such attribute until we have excluded other attributes from ϕ). Both ϕx and ψx , moreover, figure as substances of which all occurrent things are modes or forms.

In the first case asserting $(\exists x)$ and $(\exists x)(\phi x)$ would be equivalent to saying "if ϕx is a is true, then ϕ occurs and there is a thing which is subject of ϕ " - and this would give " ϕx is a entails the existence of a thing which is ϕ and

also a! Provided that we are concerned with a distinguishable class of statements of the form " ϕx is a", i.e. provided that there are no statements which have the form and do not admit of the entailments, then if X is the name of ϕx , the existential claim can be made of X in any true proposition " X is a". This naming, which corresponds to Descartes' "the substance in which ϕ immediately resides is here called..", however, presents to us as a major question whether we name x or ϕx - and it seems evident that if we name x we need only one name, "thing". Both why this seems trivial or nonsensical, and why it is important, needs to be shown. If it means only that for any noun in our language we can write "a thing which is of a certain kind" (for "a man", write "a thing which is human"), and have all the justification we need for pointing to distinguished things as existents, we can continue with our ordinary modes of discourse and discovery. We can translate from ordinary forms to special forms whenever we can find or devise adjectives. But Descartes draws quite different conclusions about Reality.

The second treatment, of ϕx as "a substance", seems to depend upon the treatment of ϕx and not x as a thing, i.e. upon ϕx being an individual. " ϕx " is the name of a mind, " ψx " is the name of a body, and we recognise $\phi x^1, \phi x^2, \phi x^3$ etc. as different minds, $\psi x^1, \psi x^2, \psi x^3$ etc. as different bodies, and each set as a set of individuals. Attributes like "a" in " ϕx is a" will be the qualitative differentiae of individuals as members of two distinct and exclusive classes. But the real

test of individuality is spatio-temporal distinctness - being at different places at one time, or possibly being so; the notions of "individual existent", "spatial location", and "date" are inter-dependent - and when we talk of individuals, saying that ϕx^1 , ϕx^2 , ϕx^3 ...are modes of the same individual (thing) is claiming that either x or ϕx is a located continuant with different features at different times. Descartes is uncertain whether to say that what is continuous is x or ϕx or ϕ itself - uncertain whether to say that what remains constant is the thing which continually thinks, i.e. acts, or that it is the act which remains constant though modal (sensing, imagining, feeling etc. are all forms of thinking, of a continually exercised act), or that it is the "thought" that exhibits different forms while remaining an individual "thought" throughout (*La Pensée, ma pensée*). He compromises to the extent of saying them all at different times and places, and even at times suggests that x is absolute and unchanging, ϕ is absolute and unchanging, and what is different at different times in any individual case is the pattern of "objects before the mind".

It is the notion of "thought" as persisting in different forms which introduces an apparently distinct treatment of substance in which spatio-temporally distinct individuals are declared to be not only (or not) identical in kind but identical in substance, to be modes of the same substance; and this seems to demand the argument that x or ϕx is spatio-temporally discontinuous but substantially identical wherever

it occurs. Thus we seem to have the old problem of the One and the Many in the case of substances instead of attributes. But what we run up against is the difference between \emptyset or $\emptyset x$ and ∇ or ∇x when considered as substances, and our difficulty is in finding any sense in which Descartes' "mind" ("thinking substance" or "thought substance") and "body" ("an extended substance" or "extended substance") can be treated "univocally" as substances in order to give meaning to the basic claim that the statement "there are two substances in the world" is both meaningful and true.

2. Our central difficulty can now be made plain. If "mind" is to be the name of $\emptyset x$ (any $\emptyset x$ is a mind), then it is impossible to give a meaning to "mind thinks", which would demand " $\emptyset x$ is \emptyset " (or, recognising the full awkwardness of the verb-attribute, " $\emptyset x$ does \emptyset ") - and this reveals not only an important aspect of the Cogito itself, but the difficulty which will concern us later of finding a completion for " $\emptyset x$ is...", i.e. of finding "qualities" for minds. Given that \emptyset is an act-predicate, there must be an agent-subject, an x , an individual; but if we call the thinking-thing "mind" any occurrence of "thinking" will be an occurrence of $\emptyset x$, an occurrence of mind. We seem to be halfway between the two different positions (a) "Thinking guarantees a thinking thing", which is equivalent to a Russellian propositional function " $\emptyset x$ " in which x is a variable, and "there must be an agent" is equivalent to "in any instance of \emptyset , either an A or a B or a C..... is thinking", where "an A or a B or a C..." is a

disjunctive list of possible values of x in the function, and (b) "A thought is a form of a substance" - a form of a substance essentially different from body or extended substance. The first position is implied by the insistence on "I think and exist", which is compatible with the claim that it is true for and in the case of any thing which in fact does think (God, angel, man or beast); the second is implied by all talk of "thought" as in mind or thoughts as contents of mind, i.e. by insisting on " p is a thought" rather than " x thinks p ".

These positions are radically different from one another, although a statement in ordinary terms with "the man" as subject, e.g. "Descartes thinks p ", considered as what is stated and not as a thought, seems to present no acute difficulty - the peculiarity of the present tense is a minor point. The agent-thing is the man Descartes, the act-predicate is "thinking p ". But it is precisely such statements that Descartes wants to reject and prove should be rejected.

Descartes wants to treat modes as modes of \emptyset and not of $\emptyset x$, since the latter would indicate different $\emptyset x$, different minds; but by ignoring the question of different minds altogether, and considering only one mind, he slides easily from the unity and persistence of "I" as identical with the unity and persistence of x to the persistence and identity of $\emptyset x$ as a modal continuum. (Idealists and British empiricists alike follow him in (a) using expressions like "I think",

"minds think", and (b) treating "mind" as equivalent, and the "I-self" as equivalent, to "the developing modal thought 'in me'" or "the temporal series of thoughts 'in me'"). The "modal continuum" illustrates the traditional role of substance as the unchanging substratum-thing which makes changes of an individual possible (or explicable, the ground or the explanation, the cause or the reason, the hidden identity within the observable differences). The wax, in Descartes' example, is such an historical modal continuum, and there the "substratum" is the material identity of all the phases; it is equally the material identity of all members of a class "bodies".

But if we consider "thoughts" and not "thinking", what Descartes presents to us in the wax analysis is a series of thoughts of what is, a series of thoughts which are what we mean by "the modal development of a piece of wax". Just as "extended substance" is the material identity and support of the historical wax, "thought-substance" is the material identity of, and support of, the historical thought "the wax is.....". This "material" is identical in the case of thought and wax only as "metaphysical matter" - so Descartes protests to Hobbes - and we shall have to examine the many ways in which "metaphysical matter" as "material" or "substantial" is taken to mean "factually material or immaterial", "really substantial or insubstantial". But once we begin to consider "thought" or "thoughts" in this way, we very clearly are not considering acts of thinking and their agents at all; and it

is difficult to find a way in which to talk about the mind or anything else as an agent.

In any case we are doing something very different from considering familiar instances and problems of agents and acts, since in such cases the agent is identifiable because it has other descriptions than "acts thus" (and has other descriptions because it is identifiable) - it is distinguishable from other agents, however similar in kind, because it has such descriptions (and again vice versa). In these cases we recognise a plurality of agents, a plurality of agents of different kinds which constitute classes each of the same kind, and any such individual is a possible value of x in the function " x acts thus". Indeed, it seems the case that it is because we are familiar with situations in which things of different kinds act in the same way, things of the same kind act in different ways, and things of different kinds act in different ways, that we can give meaning to the terms "acting thus" and "acting", and so to the function " x acts", which we can regard as indicating a class of propositions with ordinary terms as both subjects and predicates.

Now " x acts" is a peculiar "function"; it "says" less than is said by " x acts in manner Y ", which contrasts with " x acts in manner Z ". "Acting in manner Y " may be compatible with, indifferent to, or entailed by, "acting in manner Z ", though either in some sense "entails" "acting". "Actings in manners" together constitute a class of "acts" or "actings". But with what does the class "contrast"? Or, in other words,

(a) of what is the class a sub-class?, and (b) What are its co-classes?

Inability to find an answer to (a) resulted in the declaration that "acts" constitutes a summa genera. Difficulty in answering (b) resulted in the declaration that Aristotle's Categories were classes of "things" along with substances, relations, qualities.... The latter seems to me to be impossibly Aristotelian and both seem completely wrong.

What at least we can say is that the class of acts is a class of occurrences of which any member can be stated in the form "x does y" or "x acts thus". Every specific acting will be a value of the function " xK^1 " or " xK^2 " or....., where K^1 , K^2are verbs in a non-technical vocabulary, and each of the functions " xK^1 " etc. will be a function-value of " xK ", (i.e. "x acts"). The statement of any specific act will have as its subject a value of x, i.e. "a or b or c or.....", where a, b, c etc. are individual members of a complexly patterned classification of things which do act according to their capacities for specific types of action. Only when the individual value is supplied have we an historical act-statement. The function of functions (xK) is equivalent to "every act has an agent", or "if an act, then a thing or substance as agent". Any function " xK^1 " is equivalent to such a "tautology" as "every thinking has a thinker", i.e. species of "every -ing has an -er". Either is, I contend, equivalent to Aristotle's "there must be a substrate" in the case of acts, and the subject of a statement of an actual act is the necessary

substrate.

From K or K^1 we can "infer" x, for every "-ing" we know by the natural light there must be an "-er".¹ What we cannot infer is the value, and unless values are known in instances we can give no meaning to the statement of the instance as an act. Thus "inferring the agent" in any particular case is meaningless: the agent can only be discovered. The doctrine of "unknown substance agents" makes the very term "act" meaningless; if we have no idea of possible values of x, " xK^1 " is a meaningless function. (Gentile's thesis, embodied in the title of his book "Mind as Pure Act", is roughly: "thinking" is an act, it must have an agent, there is no agent, therefore mind is its own act. But this would mean "mind is a process", "mind is an activity" - and he shies from this because he cannot give an account of the process or processes without using subject-substance-agent terms).

When Descartes identifies "body" with "extension", which implies that different extensions are different bodies, he also wants to assert that body is extended substance ("body" is a name for " $\forall x$ ") and that bodies are extended (" $\forall x$ is \forall "). Mind, as I or self, is an agent whose thinking has modes, whose acts are species of the generic "act" whose connection in a series depends upon their being acts of a persistent thing or upon actual continuity of act (and the meaning of "act" in this continuous sense is Gentile's problem, Descartes' problem, though Descartes, like Hume, tends to stress the

L. The terminology is that of Lloyd Morgan and Alexander.

In Arist.Proc. Nov.19.1951, I have discussed agent-act in more detail.

"necessary agent", which Hume cannot "locate". Hume's use of "perceptions" is not a help in this - I tried in the paper mentioned above to show how "perceiving" and "what is perceived" are involved in it). But the modes of thinking substance are either individual minds (differently located, historical things, distinguishable by what they do or can think, do or can "experience", states they can or do assume; Aristotle's "potentiality" and "actuality" have to be called in here, and the choice is only between understanding it and failing to understand it) or they are modes of thought, forms of what is thought, connections and successive connections of "actualised" ideas. The latter produces, I claim, a confused formal logic or a confused science, not a study of either substance or self. Modes of $\forall x$, however, are (1) actual bodies, or (2) phases in change of actual bodies; the form of any statement about a body will be " $\forall x$ ", with adverbial (degree or quantity) modifications of the three-dimensional \forall , or changing modifications of such dimensions, but the values of x in $\forall x$, or any modification $\forall^1 x$, will be "this particle", "this sphere", "this apple", "that piece of wax", if existential claims hold in each case.

There develops a parallel between the physics of particles and the "physics" of mind as soon as "substance" is given a different (or differently mixed) use. Extended substances are particles which, under the influence of motion (a principle, and "immaterial", no more extended than "extension" is extended except in the sense that "extensions" are extended in three directions) constitute a world of bodies

and a bodily world; ideas or individual simple notions are "mental" substances which, under the influence of a principle (thinking) or of principles of connection, produce a world of thought (or for mind). No notions or connections of notions, quite obviously, can be "extended", though science is impossible unless "what they are of" is extended. And the further problem is then to find a place in the "system" for a familiar world, and to relate (a) minds with particle systems, (b) particle systems with the familiar world, (c) minds with the gross bodies of the familiar world, (d) thoughts with any of these, (e) ideas with any of these, (f) ideas with thinking, and (g) principles with anything at all.

Descartes gives us little assistance in any case, but just as we turn to ordinary discourse and familiar statements which make up our account of "the world" in order to find out what technical statements about subject and predicate, or about substances and attribute and modes, actually mean, we must turn there to find common ground with Descartes, and to find any reason for thinking that the various "things" are related and that there are problems at all. It is there that we must seek both Descartes' problems and any validation of his logic.

If we accept such a statement as "men, doing science, observe and reflect, think and make statements p and q and r which are factually (or technically) true or false", we can at least see where the problems of connection arise. Particles, if they are ~~claimed~~ to exist and to constitute gross

bodies, are related to "thinking" (a) because they are "thought" and (b) because what thinks is a gross body. If the particles are like the physicist's micro-atoms or molecules, the way in which micro-substances constitute a human body is a matter for science and, I want to show, a matter for several sciences and for philosophy in part at least because of this. (Broadly, the stages are physics, chemistry, bio-chemistry, physiology, anatomy, biology - any direct attempt to constitute a man from atoms or molecules is a perverse form of "rational geometry", and no more, and at best biology has the right to include statements about "thinking". The "ordering of sciences" is not historical, though it is partly so, and the thesis that the advance from physics to biology is deductive is nonsense). "Minds" are associated with gross bodies by the statement "men think, observe etc." and statements about other organisms sensing, desiring, feeling..... Relations between p and q and r as thoughts or statements may be logical and give rise to Logic; as components in a system of "natural history", or as laws, hypotheses and observation statements in a systematic science, their relations are extra-logical; and only when instead of p and q and r we are concerned with "x thought p", "x thought q", "x thought r", i.e. with statements of thinking, is there any question of dating or locating "thoughts". At this stage we can talk of the thinking acts or successive thinking acts of one agent-substance, one individual man, who is one, historical, complex, object of study of many sciences, and not reducible by an analysis of propositional

assertions, or a misunderstanding of propositional functions or functions of functions as fact statements of ultimate reality, to an "unknown substance" which is what all our statements and all our accounts which include "man" in them are about.

In the full sense that this "about" requires, no substance can be known, and even the particle-physics is impossibly stated. In order to show how central the notion of the necessity of the function of all functions, " xP " (where " P " denotes any predicate), and of the necessary deduction of functions (" $\exists x$ ", " $\forall x$ "), is in Descartes, and how the hope is further to continue the deductions to include all statements, we must turn to texts. What we encounter repeatedly is (1) the insistence that substance as subject is never to be known, (2) that Descartes can distinguish the two different substances which exist in the world, (3) persistent confusion in uses of "substance", and (4) the assertion as definitions of seeming fact statements which are peculiar in form and content, and are designed to protect the "first thesis", "There are souls and there are extended bodies".

.....

3. I cite, then, a number of sections of Cartesian texts, in order to locate problems which require detailed discussion. I shall make little reference to specimens already quoted, e.g. from the Principles, though most of them are repeated here in the Reply to the Second Objections. (Section numbers are Descartes').

1. By the term "thought" (cogitatio, pensée) I comprehend all that is in us, so that we are immediately aware of it. Thus all the operations of the will, the understanding, the imagination and the senses, are thoughts.

(Voluntary motions have their source or principle in thought, i.e. "thinking of" is followed by willed action, such as walking, but walking is not "thought". But "I am walking" may be only a thought).

In other words, I (or anybody else) may think that he is walking when he is not walking. What, now, is the force of "thought is all that is in us"? Let us remember that this is a definition, not a casual remark, and Descartes' definitions are designed to an end, namely rejecting "men think" or "I am a man", and establishing "I am a soul", "souls think". It is to be literally true that there is in man a thinking thing. But no matter how we twist it and turn it, the statement "thoughts are in us", "thoughts are in me", cannot be made conformable with the thesis - it can be made (or thought) by a man only if man is a thinking thing, and it is meaningless as a thought by an unextended soul.

In the whole of what follows, the use of unusual prepositions and metaphoric language, not necessarily devised by Descartes since it was in many cases the jargon of the period among philosophers, presents the same sort of problem to the careful reader. If he translates to forms which are intelligible, the conclusions do not follow; if he does not translate nothing is intelligible).

- II. By the word "idea" I understand that form of any thought by the immediate perception of which I am conscious of that same thought: so that I can express nothing in words, when I understand what I say, without making it certain, by this alone, that I possess the idea of the thing that is signified by these words.

(I comment only that this is a source of acute difficulty, not of clarity; it will concern us below. Definition is here of words by reference to facts familiar to us. We who are spoken to exist as Descartes exists, think and talk as he does, use words as he does. Whenever we say "p" and understand what is meant by "p", and understanding "p" is equivalent to "having the idea "p"". The definition of idea is designed to establish the correlation between words and meaning, sentence and statement, and "thought". But the correlation is distorted by the reference to "thing" and "signified", as it is by the use of "idea of".

"Of" symbolises effectively the demand for a spatio-temporal relation between "things in the world" and "thoughts in us" which causal theories, occasionalist theories, or pre-established harmonies are held to specify).

111. Everything in which there immediately resides, as in a subject, or by which there exists any object we perceive, that is, any property, or quality, or attribute of which we have in us any real idea, is called substance. For we have no idea of substance, accurately taken, except that it is a thing in which exists formally or eminently this property of quality which we perceive, or which is objectively in some one of our ideas, since we are taught by the natural light that nothing can have no real attribute.

(Here is the naked doctrine, which is consistent with the subject-predicate logic which gives rise to its technical vocabulary only in insisting that predicates are inconceivable independently of subjects and vice versa. "Ideas" are now of terms, not propositions, of universals or predicates and not of things to which thoughts "correspond". A "real" idea is an instantiated universal, these are what we "perceive". "Immediately residing in", "existing formally or eminently in", are metaphorical and meaningless ways of stating the relation between a perceived universal and an "unknowable" substance).

IV. The substance in which thought immediately resides is here called "mind" (mens, esprit). I here speak, however, of mens rather than anima, for the latter is equivocal, being frequently applied to denote a corporeal object.

(And so, of course is esprit, and the doctrine of animal spirits is in part alchemical, and in part closely connected with "animal passions". Compare "high spirits", "a spirited horse", and the more elevated identification of spirit with vital force. "Spirit" runs the gamut from material breath and life principle to the soul of souls and the Holy Ghost, and the alchemists had already established it as "concentrated essence" and "power".

Descartes is not arguing that it is pointless to give this or that name to substances known only as universal residences; he is reverting to statements with subjects which are distinguishable and arguable for or against. But he is doing something as well - here as elsewhere he re-defines a term in common or scientific or mixed use, and proceeds to make philosophical, scientific and fact statements which include the defined term. One of the central instances of this is "Rational Soul"; and he includes within the "defined concept" all

forms of mental activity which were carefully excluded from "rational" by those who coined the term or established its pre-Cartesian use. As a counter thesis, what is asserted is that there is one soul-agent and not several, and that all forms of activity of a mental kind are generically identical.

Whether anyone actually held that there were several souls in a man is a further question; Descartes talks of the Will, the Understanding, the Intellect, the Senses, in exactly the terms which made his predecessors look as if they thought there were several such souls. If the definition is a redescription of a correct description in the general tongue, then it amounts to rejecting a number of expressions or statements in the general tongue; and just what expressions have to go, what other words have their meaning and application altered, needs close consideration.

If the definition is claimed to be a part of science, part of a body of definitions, axioms etc., where all that is said is related to everything else said in the science, then other uses in the ordinary tongue are not questioned - the science is not concerned with all the facts about the things it studies, but some only, if it is concerned with facts at all. Above I presented this as a problem part-recognised by Descartes when he considers the geometric "method" - if what is established is established lawfully from axioms, then we have necessary connections but no "truths" which are "real" until we have established a relation between the scientific statements and facts. If the truth comes from the definitions alone, then they are synthetic, are fact claims in the ordinary pre-technical tongue and able to be challenged in that tongue.

What does seem apparent is that the various attempts to determine the number of souls could be discussed only in the range of the many true statements which could be made with "I" or "we" or "man" as the subject - "I think", "I perceive", "I sense", "I imagine" etc., since otherwise there is nothing to stop me defining a multiplicity of souls in my "science". Descartes proceeds here in the Appendix and throughout his replies to speak in terms of what we do before giving his definitions. Thus he is saying "one soul", "one self", "one I", in all such statements. But it is equally true and obvious that he speaks throughout of the I-self as willing, as moving, as walking, eating and being in various places and postures, e.g. uses "I walk, I think that I walk, I can think that I walk when I am not walking, I can think that I touch the earth when I do not" even in key arguments. Unless the definition permits of "the mind walks" then the identification of "I" and "rational soul" or "purely thinking thing" cuts right across the usage which enables it to be framed and which serves to permit arguments for the definition.

Descartes is in fact forced to assert in Principles I.IX that only the mind can know that it walks.

questions.

I stress this because it indicates the sort of problem that at some stage confronts all scientists who pin their hopes on definitions, or who hope to develop a scientific language which consists in part of rigidly defined concepts and in part of uncritically preserved ordinary language terms.

I stress further that in V here it is clearly asserted that we see attributes; VI implies that thought is an attribute, and the reference to "residing in a subject" suggests with VI that it is minds which think, while the first definition suggests that it is we who think, just as we perceive and we discuss and we read books, we make and understand statements in a language and thereby prove that we have ideas.

There is much to be said about the way in which the technical term "idea" is so given a use).

VII. The substance which is the immediate subject of local extension, and of the accidents which presuppose this extension, as figure, situation, local motion etc. is called "body". But whether the substance which is called "mind" is the same with the substance which is called "body", or whether they are two diverse substances, is a question hereafter to be determined.

(So x in ϕx and x in ψx may not be the same x ; and this is to say that x may not be a constant, but may be a class term - or it is an admission that "substance" is either a term for the class of all classes or a class term for the only two classes that exist.

Descartes knows very well what he is going to assert, what must be true, that there are two exclusive classes of substances, but he is endeavouring to arrange principles which prove what he knows and believes to be true. But what is demanded at least is that the x in ϕx and the x in ψx should be distinguishable by other than ϕ and ψ . The aim of the Meditations, like the aim of the geometrical method, is to show that these x s must be different - yet it is also clear on examination that it is shown that they are different solely by reference to the difference between ϕ and ψ and species or modes of these.

But the difference is discussed by reference to what we do and to familiar objects which we take to exist "outside us" in some sense of "us" that enables Descartes to speak of "thoughts" as in us. This raises general questions.

In definition I, thought is "what goes on in us". The subject in which thought resides appears to be "us", and this is in accordance with the assertion as a fact claim that such "things" occur within us and we "perceive them" as there located. But this is quite distinct from the logical doctrine and its use of "resides" or "inheres", and produces two distinct uses of "I" and "us" which are, in crucial instances, not equivalent but incompatible. The thinking substance of Ego Cogito derives from "I do think", from the necessity of a verb having a subject, an act having an agent. In our ordinary discourse, the values of x in ϕx may be I, you, he, any person; Descartes wants to assimilate person as agent and mind as agent, and any use of "person" which is other than equivalent to "mind" is illegitimate. x , inferred from the occurrence of ϕ , is not ϕ ; it "does" ϕ .

But as going on in me, thought is a process, and as a process it may be said to exhibit modes. It is in me and noted by me as in me, and it is this thought qua process which cannot be spatially extended, cannot be divided spatially into parts beside one another. Each mode is a mode of thought, and successive modes $\phi x^1, \phi x^2, \phi x^3 \dots$ are modes of the thought-substance x , not modes of an act or modes of me. We can only identify thought-substance and self by writing "I am a series of thoughts, I am thought-in-modes" - and hence Hume's problem of self-identity, since "I am aware that I am a series of thoughts" seems an impossible thought for such a thought-substance, and "I am a continuous series" rests upon "bodies" meaning "any bodies, anymen and any-mere".

seems to be flatly contradicted by all evidence. Ego Cogito, just as successfully as Locke's intelligible challenge to "I think always" or "the mind thinks always", or Descartes' admission in the Regulae that "I exist" does not entail "I think", establishes the difference between thought-series and thought-modes and the thinking subject.

I have already suggested that the question of distinguishing between x and x in $\exists x$ and $\forall x$ is meaningless if we insist that substance is inferred from the occurrence of attributes. There is no way of telling, no way of indicating, that there is a difference, since the distinction would have to be made in the form " x is b in this case and c in that case", and x would be inferred from the attributes b and c . We can, in fact, give a meaning to distinguishing things or substances from one another only by recognising that there are different things and different substances, and this entails that "substance" in "any attribute is of a substance" will be a class term or variable. And if it is a variable, it will be meaningless to talk of it as having qualities or attributes; what will have qualities or attributes, and will necessarily have them, will be the values of the variable, all the things which, because they can be spoken of or thought about, will be subject-substance-things.

The whole doctrine of attributes presupposing extension demands propositions of the form " $\forall x$ is figured, located and moves", i.e. "bodies are figured etc.". The force of this rests upon "bodies" meaning "any bodies, anywhen and anywhere",

and upon these bodies being different from one another and capable of being discriminated as different bodies. What Descartes wants to show, has to show, and cannot show, is that "thought" and "extension" can never occur or reside in the same substance, in the sense that both can never be truly predicated of the same thing; all that he can show is that "thought" and "extension" are not the same thoughts, not the same ideas, that "thought" is not "extension" - and in this sense, that they are different ideas, terms with different meanings, words in a familiar language with different uses, everyone will admit.

But this is not equivalent to admitting that thoughts qua activities are not extended, or that what thinks is not extended; even if we can make sense of a statement that thinking qua act (or any act qua act) is unextended, i.e. that either "extended" or "unextended" have a use in this sort of context, it does not follow that the subject of an act is extended or unextended.

"Extended" and "unextended", it seems, are in the same case as are all attribute terms - it is meaningless to try to apply them to "substance" in order to assert a difference of "substances". What we have, in fact, is the abstract counterpart of the ancient misunderstanding of classification as attaching a differentiating attribute to a genus in order to determine a species. What determines the species is the possession of an attribute by the members of the genus, the individuals of the genus-class. What is concealed by talking

of "adding the idea of Y to the idea of genus X to get the species XY" is the need for "All Xs are Y". The Cartesian procedure is rather to try and get classes by adding attributes to members which are members of no class, i.e. are just "things", and as such are not discriminable. Combine the two accounts and we have intelligibility, have an account of operative thinking and of classification, and we can give an account of (i.e. think of) the things which we classify and in classifying present part of the possible account of the things in question.

Broadly, the claim is that by accepting, and only by accepting, propositional statements in the ordinary factual mode, can a meaning be given to the technical or special assertions of metaphysicians (and of scientists).

VIII. The substance which we understand to be supremely perfect and in which we can conceive nothing that involves any defect, or limitation of perfection, is called God.

IX. When we say that some attribute is contained in the nature or concept of a thing, this is the same as if we said that the attribute is true of the thing, or that it may be affirmed of the thing itself.

X. Two substances are said to be really distinct from one another when each of them may exist without the other.

(My stress on the last phrase. Descartes wants the modal "may" because his proof of the mind-body distinction is conceptual - they are distinct substances because they can be conceived independently of one another. Independence in fact, in actuality, he cannot establish, in part because he can prove that we could never encounter one independently of the other; men are men, men are intimate unions, we are intimate unions; our sensing, our imagining, our experiencing, is of and as men. "Conceiving" is something completely different from sensing, imagining, experiencing - and the resulting complete severance of concepts from things which exist in the

familiar world is one of the reasons why Descartes is faced with all the problems of universals and instances, or of particulars and individuals, known to long-suffering mankind).

.....

If Descartes is concerned with conceiving his own world, recognising that he can think "thoughts" of complexes which have no existential claim, then criticism of his complex "patterns" or "notions" and his claims as to how he relates the constituents is pointless. But clearly this is not what he professes to be doing.

He professes, openly and apparently, to be a man along with other men, with whom he communicates using the familiar pronoun "we"; he takes it for granted that they think, that they have "ideas" in some sense of "ideas" that is entailed by their thinking, that they can use words understandingly which enable discussion of familiar worldly events and of things not so worldly - God is the name given to such a not so worldly thing.

What is to be observed is that this is not a case of a concept or an idea which is held to be named; what is so named is a thing or substance. The defining statement is that God is a thing supremely perfect, a substance in which we can conceive nothing that involves any defect. God is a perfect thing to which we give the name God. If we take VIII along with IX, which asserts that what we mean by "contained in" or "residing in" is that a predicate may be truly asserted of a subject, that the subject is a thing of

which the predication holds, we can dismiss the reference to what we can or cannot think, and can write as equivalent versions of the definition of God, "God is supremely perfect", "All perfect attributes can be asserted truly of God", or "Any assertion that God is Z, where Z is an imperfection, is false".

The pattern of argument for the existence of God demands that we can make an assertion that is meaningful and which can be discovered to be true; if it is true, then God exists. The argument from the concept of perfection to existence is a special way of showing, subsequent to the formulation of an assertion, that the assertion is true and entails the existence of the subject; that it is a way of "discovering" is made clear by the argument "If x is perfect x must exist, since if it did not exist it would not be perfect". But if it is a way of discovering a truth, or of proving a truth to be true, "x is perfect" in the case of God entails "x exists". This, I claim, is equivalent to saying that "God is perfect" is a fact statement logically like other fact statements in entailing the existence of the subject, and it is meaningful as a statement only when "God" replaces "x".

To discover whether a thing exists is to discover that an assertion about the thing is true. (There are complications here, and many would prefer to reverse the statement. We have, in fact, something very like equivalence). In terms of Definition IX, we need not reject any familiar language noun.

We may have trouble defining the noun or the thing named, since it has many features, is subject of many statements and we may not be clear as to why we want to select one such statement as of special importance; we may have difficulty in distinguishing the thing from newly discovered things which are more like it than the other things from which we distinguished it before. No one, Descartes admits, doubts except metaphysically that there are manifestly numerous things which are different from each other. Logical analysis applies to all the statements about these things, and if thing or substance is the ultimate subject, that which we know only as that in which attributes reside, whether perceived (Def. V) or conceived (Def. VIII), it is no part of Descartes' thesis that all names are names of the one substance, that "I", "mind", "God" and "body" are names of the one and only thing.

No one really doubts the existence of manifestly numerous and different things. So, Aristotle would claim, having encountered and ordered many such things, we have determined classes, definitions and essences, and have a language which works because we have established meanings for words in familiar use. You and I know what we are talking about, can tell in certain contexts what our nouns refer to or do not refer to (the use of "refer" is loose), can distinguish what need not be questioned from the questioning which our language makes possible (and even necessary).

Because some animals we meet can think, we call the

thinking things "men". Because this is not the only statement that can be made about men or animals, our assertion that some animals think and that all thinking things are animals can be challenged. More statements, more truths, are to be sought, and related to what we already have asserted by argument. Our concern is not whether the things we are talking about exist, but whether certain statements we wish to make about the things are in fact true. Satisfactory definitions are difficult to arrive at, in part because we are continually discovering new facts and features of things which are relevant to classification and definition, and at the same time our classificatory purposes and classifications are altered. (In the Posterior Analytics, II.8, we can see Aristotle struggling to make clear how the selection of a defining true statement depends upon facts, argument, and a system of organised truths called a science).

Scientific classification, fully ordered classification, begins from the classifications already established irregularly but effectively in our ordinary dealings with the world in which we exist and in which our language has developed. "All horses are animals and none are dewdrops or mountains" is a constituent complex proposition which can be presented as a partial classificatory system. The least of the scientists' worries is the question of whether the things which he familiarly so distinguishes exist or not: the criteria for existence claims are clear enough for a sufficiently large number of distinguishable things, and when existential doubts

are raised they are raised in a complex background which enables them to be sustained or settled, depending upon information available. That I cannot find a centaur to ride to work does not entail that no centaurs exist; but that I can find a horse to ride entails that horses exist.

Trite and obvious this is, but Descartes' main problem is to prove that x exists because I am related to it in a way other than "I think of x ", i.e. that x exists independently of me. What Definition V. really amounts to is that "I see ϕ " entails "there is before me that which is ϕ , namely x "; and this is equivalent to an ordinary statement " x exists because I see x " and a further assertion " x really means a substance and the ϕ -attribute which inheres in it". The "analysis" is to get necessity as well as an occurrence claim into the fact statement, and in the analysis the existential (occurrence) claim is transferred from the subject to the attribute - although this is actually the last thing that Descartes wants to do. "Seeing" is the relation which guarantees that x exists as I exist; in this sense no attribute can be said to exist or it would be a substance. And doctrines of different ways of being, of different degrees of reality or of being, derive their meaning from this simple sense of existence and independent relation.

There is a class of propositions whose truth is a guarantee of the existence of the things spoken of in asserting the proposition; such propositions enter science by way of

"What is this?" and the working out of a precise description, one of many descriptions, precision being demanded by the determinate structure of a particular complex classification and the (generally) indeterminate structure of the set of descriptions which we call an account of the thing. Once we recognise this, we can recognise how our language, how our discourse, and our thought or inquiring functions, can recognise what problems science and philosophy are confronted with. We can find a meaning for the terms used by logicians, methodologists, metaphysicians and grammarians, as I shall demonstrate in some detail below. We discover at the same time how close is the relation between Aristotle's treatment of subject and predicate as distinctions within propositions syllogistically related, within propositions which can be variously systematised, and the actual process by which subject-terms and predicate-terms function meaningfully in thought or discourse, wherein alone they can function meaningfully.

We take it for granted that the things we classify exist independently of ourselves, of one another, that they exist, persist, are ones and are multi-featured. Descartes prefers to talk of "obvious" or "clear and distinct" and of "attributes common to all things", but the result is the same if we recognise that the "list" incipiently presented in the Regulae is added to elsewhere directly and by implication. The taking for granted is like my taking it for granted that we speak a meaningful language, make fact statements sometimes truly. Neither "taking for granted" is like

"supposing that" in the case of framing an hypothesis to "explain" something, for an obvious reason. It would be related to such a supposing as "suppose there is something to be explained" is related to "suppose there is something which explains". Accept both, and we deny all meaning to "supposing" or we reach an isolated Ego by the road of the Cogito, surrendering all science and most, if not all, of the language in which we do science and argue.

Suppose that what I took to be facts were only supposed; that my answers to questions raised about them are suppositions about supposed facts and things described in such facts; then I cannot be supposing that I question and exist, cannot suppose that I am a supposed substance. I am a supposing substance; I do suppose and I exist, really exist. But what I am supposing is that I do not exist in a world which contains anything at all, although I have a language which permits me to describe in detail the supposed world which I do not occupy and to say that I suppose it in fact; and this is of no philosophical importance whatever except as indicating that (a) the "supposing" is meaningless unless it is related to at least one fact statement, so that "suppose" depends upon there being a meaning to "is not supposed" and "do suppose", and in consequence that (b) philosophy and science can be understood as concerned with what is not supposed, but what is so, while (c) it directs our attention to the fact statements by which Descartes attempts to justify the metaphysical "supposing".

(b) But what of "centaurs are human-torsoed horses"? Quite apart from the fact that this statement is a full candidate for being a supposition, and that one use of "mind" is to provide a grazing-ground for centaurs and their like, is there any reason for rejecting this as true, and as an instance of attributes residing in a substance, of a substance conceived as existing independently of other substances, on the Cartesian view?

Everything depends upon whether we are to reduce "is contained in the concept of" to "is truly predicable of" (as Descartes does in Def. IX), or vice versa (as Descartes seems to insist in all the metaphysical logic, and as he must insist if the denial of a distinction between seeing and imagining is to be maintained, along with a denial that I can be related and know that I am related to horses in a bodily - spatio-temporal and active - relation). If "contained in the concept of" is primary, then "centaurs are human-torsoed horses" is true because the properties of being human-torsoed and equine are contained in the concept of "centaur" (and all the properties of any centaur in the concept of that centaur - Descartes tries to grapple with this at times, but in general, substituting analysis for classification, he can analyse only definitions which derive from classifications).

It is true that we can claim that we do not perceive the properties or qualities of centaurs, or have not, but only (a point which needs elaboration) by surrendering the foundation of our metaphysic of mind and reasserting "perceiv-

ing" to be a seeing of "things" independent of me, i.e. before me, a reassertion which runs counter to the Cartesian doctrine of perception, that of representative ideas, and that of secondary qualities. "Perceiving", so treated, is assimilated to "am related to", "am looking at", and this, I shall continue to argue, is the ordinary use, the condition of there being science at all, and whether we need the concourse of God to justify the use, the justification is meaningless unless the use is in fact genuine.

Descartes did believe that there were horses (in Holland, in France, in Germany, but not in his *poële*), and did not believe that there were centaurs. In the sense that it can be said "centaurs so describable do not exist" the attributes of centaurs do not entail an existential truth, and this seems to be equivalent to saying that they do not inhere in a substance as do the attributes of horses. Equally it is very like saying that the definition of "Horse" and the definition of "Centaur" differ only in certain attribute-terms, but that ($\exists x$) can be asserted of horses and not of centaurs. Again we approach the contemporary logicians' claim that universal propositions have no existential entailments, can be true even if no things exist to be "grouped together" under "all".

Moreover, it is true that we could constitute a classification of sorts by defining centaurs, hippogryphs, coozlum birds, slithy toves, boojums, and any oddments derived from random combination of the terms developed in ordinary discourse.

But the least we could say of some such classifier who thought he was doing biology would be that he was mistaken, and if he asserted that this was the only way of doing biology we should have difficulty in remaining polite. It seems impossible to deny that even here "some" would be introduced with every class division; and it seems clear that anybody who classified such things along with horses and tigers and ostriches would be either a fool or a philosopher intrigued by the fact that the descriptions of the members of both "classes" (real and imaginary) were alike and permitted the classification to be stated, and hence aware that the formal rules for classification did not provide either the truths upon which the classification depended or existential guarantees for things classified.

The imaginary class, or members of it, can be rejected from the biologist's classification by the falsity of the proposition "the members are spatio-temporally related to Y", where Y is any member of the classes in the biologist's determinate classification, i.e. the falsity of the claim that the members were somewhere and somewhen in relation to any existing thing. We can if we like make the Y "myself" or "ourselves" while we regard ourselves as men; and we thus make clear a quite intelligible reflexive relation between man as classifier and man as member of a class in the classification - a relation of some importance in giving a meaning to certain metaphysical theses.

The formal rules, however clear and distinct and necessarily true, are not enough. If it is a matter of putting "ideas" together into complex thought-things, or putting words together into complex descriptions, that concerns us, then we can recognise that only things with complex accounts can be classified; but there is no meaning to be given to "exists" which will distinguish centaurs from horses. Such things as centaurs are in fact conceived of as extended and as thinking and speaking, and as existing. At this level "extension" and "thinking" reveal no incompatibility; but neither do "unity as substance-thing" and "complexity of attributes" or "complexity of relations".

Any of these things can be subjects of thoughts or of statements which can be given a Cartesian analysis; all are values of the variable "substance-subject" in "all substance-subjects have attributes". They can be classified just as they can be distinguished as real and imaginary, and science depends in large part on the distinction being accurately made even if we regard all "hypotheses" as involving imaginary entities. Why then, apart from asserting for metaphysical purposes that horses and the world they occur in, along with men, may be imaginary, and so can be disregarded as things which exist as substances, does Descartes disregard both classes of things?

Part of the answer lies in his treatment of the analytic complex-simple. When in Meditation II he asks: "What am I?", he rejects "a man" because this leads on to

"What is an animal?", and if we follow the classificatory relations through, even if we finish with the fine simplicity of "a being" we have a large number of attributes as well. No noun in ordinary use will serve his purposes, because no one of them is, so to speak, "self-contained". And the result, when he gets as close to simplicity as it is possible while preserving any suggestion that the result is "thinkable", is a single (and so simple) attribute and an inferred substance which cannot be named by a common noun at all. Once treat "mind" and "body" as common nouns and we are driven to recognising that they admit of plurals and have complex descriptions, i.e. are subjects of many statements which are true. At that point the single attributes become classificatory characteristics, and the claim is that all the things that ever were can be divided into two actual classes. The claim is a claim as to fact, not a claim as to our capacity to suppose that there are two completely exclusive classes and those only.

Descartes hopes ultimately to develop his Principles to the point where dogs and horses and men can be included in science. In the "ultimately" lies the contrast with the Aristotelian procedure. Where Aristotle was convinced that in connection with discoverable horses and dogs and men and our discourse about them was developed our conceptions of thing, substance, subject, existence, persistence, duration, of predication, of qualities and relations, of facts and theories, of definition and truth and falsity and argument and validity,

i.e. of science, logic and methodology; where Aristotle was convinced that our science demanded the rejection of earlier theses that what we knew was rational or conceptual or imaginary and that the "senses" revealed nothing that was material for science, Descartes begins with definitions, with necessary truths whose "components" must be simple, with first principles, and turns his back upon all familiar things and their complex accounts. He turns his back upon a host of propositions which can be affirmed directly, propositions which can be formulated as $(\exists x)(x \text{ is } \emptyset)$, where x and \emptyset are variables. The "logical analysis" which arrives at an x -subject for all propositions which is a constant gives an initial plausibility, which vanishes as soon as we discover that x is to be treated as a variable with only two values, viz. "mind" and "body". The logical analysis is not even an intermediate stage. Descartes' goal is the proof of a proposition of precisely the form $(\exists x)(x \text{ is } \emptyset)$; and the proof depends upon the possession of a language in a highly developed form, the assumption of the truth of a great number of universal propositions whose terms are familiar language terms, and argument presented in that language.

Descartes does not for a moment believe that God and minds and bodies do not exist. They are substances, if not univocally so ("no signification of this word can be distinctly understood which is common to God and to minds and bodies" is affirmed in Principles I.LI - a statement

which is either meaningless or makes much of the argument in terms of "substance" meaningless). Descartes treats each of the substances as "self-contained" and so necessary in a special sense - the predicates belong necessarily to the subjects, which are unthinkable without them. We cannot think of an x without a ϕ , of a ϕ without an x . But what exists is ϕx , the thing which is ϕ ; and it is not coincidental that this is a general rule for fact statements of the form " x is ϕ ", where x and ϕ are both variables. Further, what seems manifest is "a thing does not exist" is meaningless, and " ϕ does not exist" is also meaningless, although we could give a meaning to " ϕ is not then and there" or "there is not a thing which is ϕ then and there".

It is worth noting that this issue is not one that Descartes is really prepared to consider in doing metaphysics. In a sense he is concerned with dating the Cogito, but "now" is not stated in "Ego Cogito, Ego Sum" and strictly cannot be included unless we admit the contrasting "not now" and a remembered past. Location in space Descartes surrenders willingly, since this involves relation to other substances; but location in time should equally be surrendered, and the unconsidered difficulty is of giving a meaning to "exist" independently of either. The difficulty is the opposite of the difficulty of proving that a defined thing does not exist because any examined possible location or series of existing things leaves us with other places and other things to be

examined. With perception denied, such a difficulty cannot arise; but it is by no means obvious that if this question cannot arise, "existence" has any meaning at all.

Definition appears to lend a special force. If Y is the defining characteristic of X, it is meaningless to say that an X is not Y, and correspondingly that XY, an X which is Y, does not exist. But again, granted that we have a definition, and so have a classification determined, we have a formal rule for fact statements. Under these conditions the definition is one of many statements which, as a true description in each case, entails the existence of the thing described. We can deny the entailment only by denying that the descriptions describe things which occur anywhere; and having denied that, we have denied that our classification needs to be extended, that further facts need to be taken into account, that our definitions need supplementation.

Quite patently the argument above depends upon a scientific procedure which is the reverse of Descartes', and takes it for granted that classification is of encountered and distinguishable individuals. This demands consideration, but it leads immediately to the further point which Descartes is not prepared to consider in the "geometrical method", although he recognises it in passing in the Principles, namely that it is meaningless to say that an individual thing has not all the times at which it is considered all the characteristics and relations which it has in virtue of its being a

thing at a place at a time. The logical role of the individual or thing qua individual substance is to support all its attributes, not only those which it shares with other things, viz. the members of a certain class to which it belongs. That is why, in a strict sense, "thought" which begins with clear and distinct general notions which can occur in a number of complexes can never reach an individual at all, can never get beyond a statement true of a class. The claim that ϕ can be perceived and so located, and as occurring entails the existence of "a thing", begins with individuals, even if by way of the occurrence of a "particular universal" and inference of "the thing", and no question of existential doubt can arise. For the Aristotelian the question is not of finding some way in which these apparently opposed procedures can be related, but of studying the ways in which they are actually interrelated, and one of the results of such study is the discovery that predicate terms do not function as "simples".

The Aristotelian's limitations must be recognised: he can speak only of the language we actually use, the thinking we actually do, science as it functions and develops in a discoverable historical world.

4. Unlike the definition of "centaur", definitions of God, minds and bodies need something further to be said; and unlike a statement about "a thing", they make possible the

saying of something further. The respective predicates inhere in different substances, since minds are neither bodies nor God, and we must be able to say that these substances are different in kind and exist; there would be no point in a proof that they existed if in fact they did not exist, and argument is possible because we can make more than one statement about God or minds or bodies. We can admit that definition, as the putting together of "ideas" or "images" or "significant words" is not enough in these cases, and that we are doing something more.

It is still not clear what we are in fact doing in addition; it is clear enough that if defining were just a matter of conceiving a thing of a kind and saying that it existed, then the best we could say of the defined things would be that "they were possible". If any thing we conceive to exist is a possible existent only, our proof is to separate out the actual from the possible, and what we need is some truth or infallible principle that guarantees what is "known" to be of a kind and thought to exist actually exists. According to our procedure, the principle must be a rational principle, a clear and distinct thought; it cannot be a rule which involves perception of occurrences.

When Descartes begins his metaphysics, as in the Principles, under the aegis of the supposition that "nothing exists except our thoughts", the peculiar use of "thoughts" and the hollow mockery of his taking for granted our existence not only in talking of "our thoughts" but in the prior use of "we"

and the actual statement of the supposition as what we in fact do suppose as a limitation to our considerations, indicates the two horses he is riding in order to make progress. But the same two horses are ridden throughout. It is because q is true and the subject of q exists that explanation is called for, and the explanatory p is "actualised" by its being related to q . "Ego Sum", in so far as it is more than assumed that "Ego" exists as the subject of a series of statements that can be considered as factually true, derives from "thought must have a thinker" and "I am immediately aware of my thought as occurring". "God exists", in the geometrical presentation, appears to derive from an entailment by "perfection" of "existence", neither of which can be "perceived", but the central proof derives from "I in fact have the idea of perfection". Bodies are denied either proof, because "extension" is held to lack both the entailment of "existence" and the possibility of perception.

That we can think of centaurs and horses is not denied, but the formulation " $(\exists x)\phi x$ " may be only a thought" confuses the issue here, even without the addition of the argument " $(\exists \phi)$ therefore there is an x ", which is obscure because we have no clear meaning given to $(\exists \phi)$. But if we ignore all the difficulties which arise from theories of perception and treat values of ϕ as attributes of things which at least are where the values are, then

on the side of definitions and ideas, "I have an idea of ϕ as an attribute" does not entail that the ϕ -thing exists, though it does seem to entail for Descartes "I have an idea of ϕ -thing as possibly existing". Indeed, it seems to entail that I have initially the idea " ϕ -thing exists" and then doubt it. To relate this with any actual thinking we do is difficult unless we specify for ourselves the particular question which we have in mind when we think of ϕ at all. By a series of not very subtle shifts Descartes avoids these difficulties and those that follow.

In Definition IX he writes "when we say that some attribute is contained in the nature or concept of a thing", and here "concept" and "nature" are not equivalent; "nature" is at least halfway towards treating the thing as actually an existent, towards what follows in the definition, that "contained in the concept or nature" is the same as "is true of the thing" or "may be affirmed of the thing itself", where the thing itself is substance or real thing or existing thing which has a nature, i.e. has the characteristics without which it would be a different kind of thing.

The concept might provide, as a union of ideas, "if there is a thing x then that thing is y, since y is included in the concept of x"; but it cannot provide "there is a thing x which is y". This must be provided if the definition is to function in science, and the recognition of this is equivalent to Descartes' recognition that what is explained

"gives reality" to necessary truths. In Descartes' definitions there is no problem - because the definitions take the form "the name X is given to the thing which has the feature Z": "the name "God" is given to the thing which is perfect"; "the name "mind" is given to the thing which does think, the substance in which thought does reside"; and similarly with bodies - "the substance which is the immediate subject of local extension and accidents which pre-suppose it is called "body"".

In every case what is asserted is that a thing exists, can be named, has an attribute such that the attribute can be truly asserted of the thing in question and of none of the otherwise named things. Except in the case of God, and without a reason being given, plurality of things which can be so named is assumed. In so far as "thing or substance" can be relevantly used in the definitions, it is a variable and not a constant; the values are taken for granted to exist, and there is no question of adding characteristics to a constant in order to get different substances. What is simply stated is that there are minds which think, bodies which are extended and have other attributes, and one God who is perfect.

It would be a digression here, if a tempting one, to consider how the ten definitions, the seven fantastic postulates, the ten common notions, and four propositions prove that mind and body are really distinct, and do so

via the omnipotence of God because Descartes happened to begin with God, and not because "there is need of any extraordinary power in order to separate the mind from the body". Descartes is vaguely aware of the rationalist's need for a system of propositions all of which are true and all of which are so related by entailment that no one of them could be true unless each of the others were true. What concerns us directly is that even if our language is restricted to the three nouns "God", "mind" and "body", they are as the only possible subjects at least different substances.

That they constitute the only kinds of thing, or (ignoring God because He creates substantial difficulties) that minds and bodies constitute the only two classes of things, indicates the role of "thing" or "substance" (1) as a class term for the class of classes, (2) as a class, when the plural is used, which is the subject of a purely formal principle that all thing-substances have attributes, and (3) as the subject of any statement with the predicates "is one", "exists", "persists", "is related to", "acts".... and a variety of others which are meaningful only when the substance in question is determinate as qualitatively distinguished from other classes of things or members of such classes. We may note that in (3) "predicate" is used in the grammarian's sense in which the predicate is the whole of the sentence except the subject, not in the sense

in which the predicate is restricted to the adjectival complement of the verb "to be", or a noun complement of the same verb. The logician's claim that statements should be put into logical form for logical purposes is not equivalent to a claim that they should be put into such a form for ontological or metaphysical purposes.

(5) If we write "x" for "thing" in the sense of (3), while recognising that it is correlative with the senses of (1) and (2), one goal of metaphysicians can be stated as that of supplementing "(x)x is....." in such a way that the complete statement is in fact true of all things which can be co-classified as members of the class of existents or "Beings". Roughly speaking, Aristotle posits the problem (which he is forced to take over from his predecessors) as: "Definition and classification as the result of study answer the question "What does it mean to be a kind of thing?", but the further question is "What does it mean to be a thing?".

Aristotle's answer seems to be that it means to be the individual subject of a true proposition, and that there are as many things as there are such propositions. In restricting or specifying the class of propositions in question, I am specifying what Aristotle takes for granted in presenting his examples, that he is concerned with propositions known to be true, propositions established in or for a science. Both of us are denying that the two questions

can be asked independently of one another, both of us are asserting that unless propositions of the form "this existing thing is such" could be truly stated there could not be any classification, both of us are denying that classification is a meaningful procedure if there are no things to be classified, i.e. that it makes sense to say "classes have no members" or "members are not of classes". Both of us, I take it, recognise that classification does not include any statement as to the number of members of any class, as to the location and date of any members, or as to the further historical fact statements that can be made about any member of any class.

Both of us are taking it for granted that things which we classify can be encountered and discriminated one from another; both of us are able to move from actuality, from existing things, to possibility, e.g. to reports of observations or to anticipations of observations which may be false or unfulfilled. We derive a meaning for "does not exist" from "does exist", and are not forced to derive a meaning for "does not not exist" from "does not exist", and "may not exist" means, in part at least, "is not to be included in our classification of things until or unless further specifiable criteria are satisfied". We start with snakes, not dragons; horses, not centaurs; men, not gods.

Neither of us can give a meaning to "there is a thing at place p at time t which has no attributes, is not of any kind" (though we can to "not of any known kind"); neither of

us can give a meaning to "there are attributes then and there which are of no thing", or "there is a kind of thing Y which is at no place" (though either of us can recognise other uses of "thing" and "exist" which in other contexts are intelligible).

In a sense these claims can be regarded as obvious, as what all would admit, as what nobody would want to deny. But when Aristotle or myself insists on their validity, and upon the relevance of them to the "problem of Being", we seem to be uttering contradictories of many different propositions propounded by metaphysicians, all of whom seem to be stating what Being is in such a way that statements like "men exist", "rabbits exist", are at best true in a peculiar manner while the things indicated, men and rabbits, exist only in a special and somehow Unreal sense. Further, Aristotle was quite well aware that he was contradicting or rejecting certain previous metaphysical theories.

He rejects metaphysical statements like "if x is a thing that exists x is made of water", "if x is an existent x is a number", "if x is an existent x is a collection of atoms". What materialists seem to be asserting is that to be is to be matter, and such positions entail a set of claims (a) that there is no dubiety or difficulty in understanding, in the case of a statement like "the matter we name and specify exists" - although even if the description is given it does not touch the question "What is it to be?"; it gives a new subject

to the verb "to be" or "to exist", and (b) that the things Aristotle and myself regard as existent are somehow constituted of such things or matters, since otherwise the metaphysical thesis is unrelated to the world which sets problems and determines the reality, in Descartes' sense, of the metaphysical "truths". Materialists assert a necessary truth - "Being is matter" or "matter exists" - or a tautology which can be presented as "'Being' means 'matter'"; but the thesis seems in fact to be "all existing things are material in the sense of being composed of the matter which we say exists", and it is difficult to see how this is more than a peculiar sort of fact claim about the things admitted to exist observably. The peculiarity is only indicated by talking of "ultimate reality" or "ultimate substance", since "ultimate" has a scorpion-like sting in the tail.

What makes the issue particularly relevant to our discussion is the way in which Descartes tries to do metaphysical physics by asserting such a matter, and treats his thesis (a) as a cosmogonical account - what there was in the world before transformation resulted in the world which we describe as ordinary men and explain as scientists; (b) as a cosmological account of what there Really Is in the world, which is totally different in kind from what we take it to be; and (c) as an "explanatory account" which is hypothetical and clear and distinct but merely useful as a fashion of

considering what goes on in the world, a way of dealing with the world, without in any sense replacing the factual account of observable "goings on". The Cosmology asserts that what the Cosmogony declares once went on is still going on; the "useful hypothesis" account admits that there is no point in saying that either the Cosmology or the Cosmogony is an account of occurrences. In the Regulae, for example, Descartes is clear that hypotheses may be useful without being true in a factual sense. But what he cannot reject is the notion that if the hypothesis works there must be "something more to it" than being a mere hypothesis; if the explanation explains it must be "real"; or, in more recently developed terminology, if the model works in enabling predications the model corresponds to what is really going on.

Against a materialist background, Parmenides appears as refusing to accept the reduction of Being to Matter, or the equivalence of "Being" and "Matter". Socrates, if we consider him as rejecting the Heraclitean endorsement of "changing things exist" (which is essential to the insistence on the validity of a biological classification or any recognition of historical things as the concern of science) appears as identifying Being and Forms. This, too, Aristotle rejects; but while Descartes' physics is purely materialist, whatever differences he can claim for his particles to distinguish his matters from those of Empedocles or the

Timaeus, his theory of ideas is completely Socratic.

Yet what makes either position intelligible as a philosophical hypothesis is "x is material", "y participates in a form", where x and y are members of classes of existing things neither Matter as such nor Forms as such. Not only do we need to begin with true propositions, with the recognition of things of different kinds, but the metaphysical propositions themselves appear to be merely true. Only when Forms are sundered from things, only when the Soul is made a thing whose habitat is the world of Forms, do we get the thesis that the things of the world we encounter are Unreal, and the consequent claim that if the values of x are things in the familiar world then "x is material", like "x is a Form", is either meaningless or false. We can see in the next chapter how this claim is related to the notion of dreams as insubstantial, to the assimilation of perception and the historically occurring to dreaming, and to a special notion of substance.

Examined closely, moreover, Descartes' argument to the nature of the soul and to the existence of the soul is scarcely distinguishable from Socrates' general argument in the Phaedo - it is a fact that I "know" Forms, it is logically necessary that there should be a knower of the Forms if the Forms are known, Forms can be known independently of things participating in them (if I did not know the Forms, did not have certain ideas, I could not recognise any thing as participating in the Forms, which have no "falsity"; I can doubt

existence of any thing which participates in or has a Form, but it is meaningless to say that I can also doubt the Form); ergo, I am a pure knower of the Forms because I know the Forms before I encounter things in the world, and (for Socrates), I existed as a pure knower before I entered this world, or (for Descartes, who has further information) I was created when I entered this world as a pure knower, and I am still a pure knower because I think in Forms and can do this or could do this even if there were no things with which I could be acquainted. In either case "I", as pure knower, cannot belong to the world of complex things which can disintegrate and cease to be.

Both of the theses, of the pure knowing thing and the Real Matter, have to be related to a distinction between Substance as really existing and yet assuming various forms which are transient, and each of them is concerned with a subject which is constant and attributes which either change or "come and go". But in spite of Aristotle's rejection of both Forms and various Matters, an argued rejection which Descartes ignores completely while he serves up relics of his training at La Flèche as self-created and indubitable thoughts, when we try to contrast Descartes' general position with regard to substance and attribute with that of Aristotle, the first difficulty is to find a difference.

Chapter VIII.

Simple Souls and Simple Notions.

The claim is repeated that "substance" and "attribute", like "subject" and "predicate", are technical terms, whose meaning can be indicated only by reference to meaningful propositional assertions in a language. ϕx , as attribute-substance, corresponds to " x is ϕ ", where x and ϕ are variables whose values are "natural" nouns and adjectives or their equivalents.

This logical analysis is trivial but only if logic is trivial.

Natural language statements, which Descartes accepts in arguing, cannot be "reduced" via "complex therefore simples". Descartes does not provide an atomic-language which can be related to our familiar-world language, and if souls think by relating simple notions their thought is unlike ours.

(p.302). Descartes misunderstands the conditions of classification, definition and essence-determination. The contrast between Descartes' analysis of fact statements and those statements with their logical features has important consequences, which are listed (p.305) and are to be discussed.

Descartes' claims as to our knowledge of substance, attribute and existence are denied by Descartes. We are claimed never to know "existence" directly - but the whole procedure collapses unless we have " ϕ exists" - $(\exists \phi)$ - and " $(\exists \phi)$ entails ' x is ϕ '", and also " $(\exists x)(\phi x)$ ".

But the transition from $(\exists \phi)$ demands " ϕ is an attribute" and, like his successors, Descartes simply ignores this.

Given a statement of the form " ϕx ", logical analysis gives us directly that the value of ϕ is an attribute of the value of x that is the subject-substance. The "scientific" analysis of Descartes gives us two things, either values or a variable and a value of the other, which have to be related.

"Inherence" and "adherence" fail to be meaningful as such relations. If the idea of "attributes are of a substance" is held to be regulative, minds and men think differently, or men are unconscious of the ideas which minds have and the work they do in men's thinking.

And unless the result is values given to both variables, the resulting thoughts are questions that must have an answer; they are not answers or statements.

2. (p.318). A detailed examination of the doctrine of "simple notions" shows that if there were such, they would

fall outside our "thoughts". This has to be considered in relation to nouns and adjectives. Neither can be dispensed with, nor can predication. Natural individuals are unaccountable on the simple-notions thesis.

Descartes works by defining existing classifiable individuals which have a complex account - and the components of the accounts are propositions, one of which (qua definition) is true in a special sense. Neither definitions nor individuals are reached by adding simples.

Secrates of the Phaedo, according to Plato (and Church).

.....

"Then before we began to see, and to hear, and to use the other senses, we must have received the knowledge of the nature of abstract and real equality; otherwise we could not have compared equal sensible objects with abstract equality, and seen that the former in all cases strive to be like the latter, though they are always inferior to it.....

Did we not see, and hear, and possess the other senses as soon as we were born?.....

And we must have received this knowledge of abstract equality before we had these senses?.....

Then, it seems, we must have received that knowledge before we were born?.....

Our present reasoning does not refer only to equality. It refers just as much to absolute good, and absolute beauty, and absolute justice, and absolute holiness; in short, I repeat, to everything we mark with the name of the real, in the questions and answers of our dialectic. So we must have received our knowledge of all realities before we were born.

.....

"Is it not rather the case that the man, who prepares himself most carefully to apprehend by his intellect the essence of each thing which he examines, will come nearest to the knowledge of it?....

In every case he will pursue pure and absolute being with his pure intellect alone. He will be set free as far as possible from the eye, the ear, and, in short, from the whole body, because intercourse with the body troubles the soul and hinders her from gaining truth and wisdom."

.....

"The soul by herself must behold things as they are".

.....

Simple Souls and Simple Notions.

The chapter break is purely for convenience. The exploration and argument continue directly. So complex are the ramifications of the treatment of fact statements as analysable into "substance-thing" and "attributes" that it is impossible to consider it briefly and directly without appearing to ignore problems, situations and arguments which are held both to give the doctrine a meaning and to show that it is necessary. Logic, theory of mind, theory of science and of knowledge, theory of perception, and ontology, all seem to come to pieces in our hands when the analysis is denied. Yet this should scarcely surprise us, since if the claim is that there are in the world substances and attributes, logic etc. must also be claimed as sciences which, concerned with "what things there are", are concerned with substance-things and attributes.

If, as I claim, "substance" and "attribute", like "subject" and "predicate", are technical terms whose meaning can be indicated only by reference to propositional statements in a language, then meaningful propositions, as thought or as stated, precede any statements made about substance, attribute, subject or predicate. If the technical terms are logical terms, then a "logical analysis" of a proposition like "the horse is brown" will be: " "the horse" is a subject-substance"; " "brown" is a predicate-attribute". Substance-subject and attribute-predicate are related in the statement by the copula, the predicative "is". Correspondingly, grammatical analysis would yield us article, noun, verb and adjective.

All that we can think or say about the horse, after the analysis, is that it is brown. If the statement is true, then a brown horse exists; if it is false, no brown horse is before us to be indicated by "the"; and if the statement is "just a thought" (as it is here), we are concerned with a statement or thought which exemplifies logical or grammatical features of statements or thoughts, with an example and not a statement-in-use. About my mind, my knowledge, or the conditions of my understanding the statement, being able to "think the thought", we have no information.

If we are concerned with existence, encountering or perceiving, we are concerned not with "substance" and "attribute" but with horses and men and trees, shapes and colours and perhaps sounds and smells. There can be no question of "knowing" substances or attributes in any perceptual way. In Descartes' terms, the distinction between "substance" and "attribute" is a distinction of reason; and this, I claim, is equivalent to saying that the distinction is made within a propositional assertion or thought, which is to be related to what is perceived (looked at, noted, observed) via the assertion or thought.

Analysing "x is ϕ " into "'x' is a substance-term and ' ϕ ' is an attribute-term" is not "substantial analysis", not a discovery of "things". When we give values to x and to ϕ , and write "the horse is brown", the "analysis" looks more like making a logical comment about the statement, telling us nothing and ineffably futile. We could make the same

comment about all the countless individual propositions which we can utter or understand when statements are uttered, saying nothing and learning nothing. And grammatical comments would be equally possible, equally futile.

But the use of the comment is to be found in logic, in a special science which Descartes dismisses and never considers. "Attribute-terms are undistributed in affirmative propositions and distributed in negative propositions" is an important, intelligible, and far from futile statement, and (whatever we may want to say about its limits in relation to classes of actually meaningful assertions in a language) one that finds its meaning in the study of the relations between propositions which are components in arguments. That a logical statement should be meaningful only within a science of logic, terms should be meaningful only in propositions, statements within systems of statements, words within a language via statements possible in the language, is inconceivable to Descartes. A true "atomist", his model is "you cannot have a house of bricks without the bricks". You cannot have a complex idea without simple ideas; if the "whole" is intelligible, it is made up of intelligible and irreducible units.

What emerges from the treatment of thing-substance as really distinct from attribute-predicate is (a) the simplicity of "thing", the identity of "thing", and a variety of arguments to a simple and unchanging soul-thing, (b) an insistence upon attributes as initially simple and constant, and these are the Socratic Forms with Cartesian simplifications. Descartes' Socraticism fails to provide a metaphysic or a language which

can be related to the spatio-temporal familiar world or to our human language.

Alternatively, we may say that if there are souls which think by relating simple notions, such thinking is totally unlike our familiar thinking; and this means that what they think can never be what we think. A soul's concepts contrast in their simplicity with the plasticity of ours. With only "substance" and "attribute" the soul cannot think; even with substance-terms and attribute-terms the soul cannot think, without introducing the articles, verbs, prepositions and conjunctions which we use, there is neither a grammatical nor a logical structure to the soul's thoughts.

For Descartes, of course, "the soul" is "I" who thinks as I think, and there is no problem of the "source" of "ideas" other than of nouns and adjectives. The "ideas" are taken for granted, along with a complete language; and it is concern only with misunderstood elementary logical distinctions that hides the fact that neither our thought nor our language functions "additively", that none of our words are meaningful in isolation from other words. "Complex therefore simple" fails to be intelligible, and with its failure the Cartesian analysis of propositions, which are treated as things and analyses of things, also fails to be intelligible.

Descartes is not alone or being original in misunderstanding the nature of logical statements, or in treating elementary logical statements as metaphysical fact-statements and ontological foundations. Nor is he being original in

his corresponding misunderstanding of classification, definition and essences. Given a determinate classification, even one inherent in a language of fact statements, we can make a host of statements of the form: "if and only if a thing is x and y is it a z "; but this holds while x is a generic term, y a differentiating attribute within the genus, and z is a class term. The fact-form is "All z are xy ", and the role of "thing" in the hypothetical formulation is illustrated by "member" in "any member of the class z is both x and y ".

Descartes treats "thing" as a constant and " x " as a principal attribute; thereby he converts "essence" or "definition" into a single term, and because " x " is the only intelligible in "a thing is x " he reverts to a doctrine that "essence" is substance and unchanging. (\emptyset , not x or $\emptyset x$, is what is identical in its modes). "Principal attribute" is meaningful in, and only in, a classificatory system; \emptyset as principal attribute determines a genus to which a thing which is \emptyset belongs, as well as classes to which it does not belong, and it is only when we treat the classificatory system as a rational and absolute structure without reference to the historical things which are classified that we even give meaning to Descartes' fundamental proposition, namely "if \emptyset is a principal attribute, then a thing's ceasing to be \emptyset is ceasing to be".

If, however, it is possible to start with the notion of "thing" as one, existing and enduring, and treat "principal attribute" as that which the thing is necessarily at any

time, provided we could create such a thing then ceasing to be \emptyset would be ceasing to be a \emptyset - thing and a thing at all. Until we have created it we have only a "concept" of an eternal thing. By treating two real attributes, thinking and being extended, as principal attributes, Descartes conceives two classes, exclusive because he conceives the attributes to be exclusive, and he names the conceived things "minds" and "bodies".

The attribute-terms Descartes takes from ordinary language, but he is not concerned with what in ordinary terms are taken to be the subjects. The technical term "principal attribute" comes from classificatory science, for which Descartes seems to have a contempt similar to the contempt he had for syllogistic logic, the source of the terms "substance" and "attribute". The procedure involved throughout is (a) selecting terms from ordinary and technical vocabularies, (b) declaring the terms to be ideas or notions which are simple and belong to the same level of language so that statements can be made by adding any notion to another notion, and (c) treating the resulting statements as fact statements in a natural language, and necessarily true.

What makes the statements apparently meaningful is that initially the technical terms are technical terms in logic, and their meaning can be exhibited by pointing to features of propositional statements. It is for this reason that we find difficulty, as I commented in concluding the last chapter, in discovering a difference between Aristotle and Descartes.

It is this "correspondence" which gives plausibility to the metaphysical assertions and the claimed analyses; but when we examine Descartes' interpretation of the statements and the analyses we find that they contrast so markedly with ordinary language fact statements and their logical features that we seem confronted with a new world and a new and unintelligible mode of thinking by things in that world. In making this contrast clear

(a) we get rid of simple notions, simple attributes, and arguments from them to simple souls, in our language or world;

(b) we discover something of the logic of "praedicatum adest" and "praedicatum inest", and of "universals";

(c) Discover that Cartesian analysis of complex ideas is neither analysis of thoughts nor of anything at all;

(d) We discover why Descartes is in hopeless difficulties over individuals, and takes no account of history at all;

(e) We discover a central confusion which still persists as a legacy of Descartes, that we perceive "attributes" only, and that these are ontological entities - while "substance" is a fiction or myth or unknowable, and familiar things "illusory"; and finally, more important than any of these,

(f) We discover that metaphysics and what the natural light reveals appear with relations of propositional thoughts or statements, and not with analyses of them.

.....

Our first difficulty is of finding a difference.

The claims (a) that we never know substance or existence directly, (b) that we know substance strictly only as a subject in which attributes inhere, and (c) that the natural light shows us that no attribute can be of nothing - a proposition which converts directly into "no thing can have no attributes", need only the alteration of (a) to "we can give no meaning to "thing existing" unless the thing is the subject of true attributive statements" in order to absorb (b) and to make it clear that the claims are readily intelligible as statements about the logical features of any propositions whose subjects are nouns and predicates adjectives. What is being insisted upon is that we neither encounter or can think mere existence or mere thing or mere attributes - the verb "to know" is being tortured in the Cartesian presentation with its suggestion that "substance" and "existence" and "attributes" are things of which we become aware by our relation to them and by their relation to one another.

But it is equally difficult to understand Descartes' metaphysics unless we can understand, as well as the claims above, (a) that we do know "thing" or "substance" independently of attributes, can understand (have an idea of) "a thing exists" independently of attribute terms, (b) that we do know "attributes" independently of things or "thing", since $(\exists \emptyset)$ preceded "there must be a thing" and "a thing is \emptyset ", and (c) that "a thing is \emptyset " is constituted by relating "thing" and " \emptyset ", i.e. two different sorts of thing into a special

relation. In (b) the point of transition from $(\exists \emptyset)$ to "there must be a thing" is, however, " \emptyset is an attribute", and this is something which the logical light apparently reveals to us, or grasps before revealing to us, that there is any question of a thing. The point is vital to our understanding of much subsequent philosophy. Descartes, like so many others, takes it for granted that we see colours and shapes, hear sounds, smell odours etc., and in this sense "know directly" means "are simply aware of". But as "objects of awareness" the members of the classes "colours", "shapes" etc. are merely objects to which we are related, and while this gives them a special status as "directly known", it provides no justification whatever for calling them "qualities" or "attributes" or "predicates".

It is logical analysis of propositions which produces a meaning for "subject" and "predicate", for "substance" and "quality" or "attribute", and logical analysis does not present us with any problem as to how subjects and predicates are related. It is when logical analysis is treated as a scientific analysis (for want of a better term I use "scientific" - what results is an account of different substances-thing to which attributes are related for us to know "things" as elements of thoughts, thing-elements which have to be related) that we are driven to a theory of "ideas" which minds spend their time putting together in ways intuitively known; and it is when this is backed by an epistemological thesis, or a theory of perception, that

we get a dualism, which forces us to argue that our ordinary thought is meaningless and to continue the argument to a denial of the dualism as unthinkable. There may be an empirical problem as to how redness is related to the apple which is there on the table, but if so no one seems concerned with the problem ; the question "How is the red paint related to the pillar box?" is readily answered by "It adheres to it", or "to its surface", while "redness" adheres to neither box nor paint nor surface, nor surface to box; no analysis is required to enable us to understand "the apple is red", and the logical analysis of subject and predicate begins with the consideration of such an intelligible thought. None of these routes seem to lead to a logic of "adherence", i.e. to a claim that attributes are stuck onto, adhere to, an otherwise naked substance.

We cannot, empirically, find a quality "adhering to" a mere "thing"; we do not, in our intelligible discourse, construct thoughts or statements in which the subject is a mere thing and the attributes clearly distinct from and added to it. Motivation may be complex, but the process of logical analysis outlined in detail above that results in a doctrine of a substance-thing to which attributes are related has to invent some such term as "adheres" because predication is no longer meaningful, and "attribute" means "the sort of thing that can adhere to a substance". It no longer means "predicate", and it is impossible to tell whether we are considering "red" or "redness". Nor, granted that we understand "having" an idea of

"thing" and an idea of "redness", can we make anything more of "adherence" of ideas, one to or onto the other, than that we must have done something with them in order to get the thought "a red thing" or "the thing is red" in which we can distinguish subject from what is predicated of the subject. That we do synthesise in this way, and that we name after synthesising "thing" and " ϕ " into " ϕ -thing", calling the ϕ -thing X, I shall claim is not the case, nor, if "thing" and " ϕ " are simple, possibly the case. But it seems clear that the argument for the synthesis rests upon the truth of the account of the analysis, which is of X, not of "thing" or "attribute", and we have to convert X into a proposition or propositions before the analysis can begin in terms of substance and attribute.

Locke makes clear what Descartes does not state clearly, that the analysis is always of an idea of a thing in the ordinary sense of a this or that kind of thing which we name, a thing which we can state to be such and such; for both of them the "idea" is necessarily complex. The complexity enables a change from the logic of adherence to a logic of inherence, the first plausible seemingly as an account of how the things we "have in mind" are made, the latter seemingly plausible as an analysis of named-complexes but flatly nonsensical as an account of the analysis of existing things.

" ϕ " inheres not in "thing" but in "X", which is the name of a kind of thing, not of an "idea". But it cannot

inhere in a name; it cannot inhere in a thing named; it can only inhere in our "complex idea of a thing". What Descartes wants to say is that " X is ϕ " is true and that this is equivalent to " ϕ inheres in X "; and while we stress " X is ϕ is true" we can cope with " X is ϕ is always true", and so with definition. If the point of a definition is to be found in a classification, which justifies our asserting ϕ and not another quality as defining, then our justification is to be found outside any true assertion about X . We are not concerned with analysis at all. On Descartes' analytic account, " X is ϕ is true" seems to be meaningless, since either " X means ϕ -thing" or " X " is the name of the subject of any statement. Unless we can give a meaning to "thing is ϕ ", we should have to say " ϕ adheres to thing", that " X " is the name of " ϕ -thing", and then we can introduce the copula for " X is abc " where a and b and c are non-defining attributes.

Descartes makes no use of "adherence", and takes it that "a thing is ϕ " is meaningful in any case where ϕ is a predicate term in discourse. But the analytic account is very different from an account of our use of definition which enables us to say "if any thing is XY it is Z ", "if any thing is a man it is rational and animal", and correspondingly that no thing which is not both rational and animal is a man! "Thing" here is a class term or variable, and we have what we might well call governing rules for propositional

thinking or syllogistic argument, or examples of the universal premises which are employed in thinking and in argument.

Descartes' rejection of syllogism and of classification in determining universal propositions as definitional follows the familiar pattern; complexity implies simplicity, the task must be to analyse and so to reveal the simples from which and with which we began, and the analysis is held to entail a matter of historical fact, a fact about actual thinking although we knew nothing of it. We could not think "x is y" unless we had the idea of x and the idea of y and then related them; the subject x can be different from the subjects A and B only in attribute, so that we must have the idea of thing qua thing as subject or mere thing or substance. Analysis gets rid of all nouns, of x and A and B, leaving only "thing or substance or subject" - of which in isolation we can have no understanding at all. So all the weight falls on "attribute"; but we do not seem able to grasp the idea of attribute qua attribute, of mere attribute, any more than we can grasp "mere subject". When we try to think "a thing has an attribute" nothing, so to speak, happens. Attributes, whether simple or complexes of different simples, are what Descartes assumes all the time, and it is not "attribute" but specific attributes which appear as predicates in thoughts or statements.

And what seems apparent to the natural light is that until we discover that the specifics we "perceive" or "know" are

attributes, thinking is impossible.

"Attribute" is permitted to be a class term or variable, and at the same time "attribute" must be understood as meaning "that which must inhere in a substance". Seemingly we can discover that ϕ is an attribute by its capacity to appear in a proposition as predicate; and seemingly we should also be able to discover substances by examining propositions which have been thought or stated. But this would entail recognising that "subject" is also a class term or variable, and the propositions which enable this recognition are not what Descartes wants. Actual thinking is a disguised form of real thinking; real thinking is the relating of "thing-substance-subject" as a simple and a constant not with "attribute" as a class-term or variable but with a particular attribute or attributes. But until we have grasped the relation in relating them, neither thing-substance-subject or attribute can be "objects of thought". That we have so related them, that we must have so related them, is held to be apparent because we do think propositionally - we do think thoughts of the form "x is y", these thoughts are reducible to "a thing is x and y", therefore we did think "a thing is x and y". Because we do think "God is perfect", "minds think", "bodies are extended", we did think "a thing is perfect and its name is God" etc..

The analysis is of thoughts actually thought, and the argument is that analysis shows what must have been grasped as elements prior to the process of relating which

is the thinking. Yet clearly it is false that we do think in this way, unless we are entirely unconscious of the elements in our thought and the thinking that we actually do. Even if it is claimed that once upon a time we started in this way, we neither continue in this way nor, a fortiori, do we argue in related ways; and if the analysis holds of our actual thoughts in such a way as to show that we began so, there is no reason for rejecting our "advanced thoughts", for declaring that there is something wrong with them and that we should think in different ways.

Why should this possibility be raised? Because Descartes raises it in the Regulae, and his general doctrine emerges from his "discovery" of how we really think as distinct from the ways in which we actually think, traduced from simple and mechanical and impossibly erroneous relating of notions clear and distinct to the natural light by the persuasion or authority of incompetent philosophers, or by those imperfections of the will which are desires for untruth, or prejudices absorbed from those around us who are not Descartes.

But just as clearly as it is false that we actually think in the way indicated, just as clearly as Descartes' technical terms were learned while he was being taught the elements of a version of Aristotelian logic, his claim that we do not know substance directly rests upon the statement that "thing-substance-subject" means that in which attributes

inhere, and a value of ϕ can be grasped as an attribute only by its being related to "thing-substance-subject" because "attribute" means "that which inheres in a substance". "Attributes inhere in substances" is a special, somehow regulative proposition, and what is regulated is thought in which subjects and predicates are values of "substance" and "attribute", even if the different subjects are only numerically distinct.

But if the inherence-doctrine holds, all subjects are qua substances complex; "thing" inheres in such a complex as much as the attribute or attributes inhere; and this is not only in accordance with our ordinary usage in which we say "X is a thing", but without it we could not state the difference between "thing" and "attribute" in any instance of things and of attributes. Further, granted that we understand "substance" and "attribute" readily enough if we can relate them to terms in thoughts already thought and open to inspection, and thus can understand their use in relation to the propositions which Descartes asserts with "God", "mind" and "body" as subjects, there is no apparent reason why we should reject any proposition which can be analysed, any complex term which can be used in a proposition. We are no nearer to establishing necessary existence for one complex substance rather than any other, and we are no nearer to giving a meaning to the statement "attributes inhere in a substance" (or "substances")

independently of propositional thoughts. As initially regulative the ideas of substance and attribute and of the relation of substance and attribute are not only unconscious but beyond any understanding; nor is the relation between them the predication which they "regulate" when other ideas become thoughts. "Substance is attributes" is sheer nonsense until it is erected into a complete metaphysic by post-Cartesians, blissfully unaware that Descartes, like Locke, hangs onto "substance-subject-thing" because without it propositional assertions and all nouns disappear from science.

What, in a general philosophical sense, is important about the unconscious nature of "regulative ideas" is that it is entailed as a conclusion by any thesis of innate ideas if the thesis is to be related to the thoughts which we do think. In general the holders of such a thesis have not been prepared to push their thesis far enough to make the entailment clear, but granted the nature of ideas and the facts of thinking, even Locke's talk of "the mind's operation upon its ideas" points the way (a) to the necessary existence of a mind which knows what it is doing though the "owner" of the mind does not, or which operates lawfully and unconsciously, thus justifying (b) claims as to the ultimate mystery of minds, which can be inferred necessarily but only from their modes of acting, i.e. from "attributes"

which must, as we know, be of a substance. By a complex argument we separate man and his mind: he does think propositionally, he has the power to think propositionally, to think in accordance with the rule "substances always have predicate-attributes", the rule must be known and since he obviously does not know it the mind which forms the thought must know it. We philosophers have the task of getting to know what the mind already knows, and then, it seems, we can form thoughts rationally.

The analysis of the thought "this cow is red" gives us only four ideas; comparison of a number of such thoughts enables us to recognise two sets of ideas, and to make an entirely new statement which is about thought - "thought is propositional", "subjects in thoughts have predicates". We can also say that different subjects have different predicates. What subjects we note depends upon the thoughts we consider; if we want to reject certain subjects from science, ghosts, goblins, centaurs or gods, we can do so by argument, by pointing to criteria unsatisfied, before and without having noted the logical distinctions in thoughts. The logical statement can be interpreted as a relation between variables, a logical relation and strictly a relation, since there is no question of predication. Variables cannot be predicated of variables. But equally none of our original predicates can be asserted of variables, and just as we should reject "substances are attributes" or "subjects are predicates" (whatever

we may want to say about the role of terms appearing in different propositions), we should reject "a substance-subject is red" or "this cow has attributes". Both appear to have an element of necessity over and above mere factuality, but the first corresponds to "here is a red thing - what sort of thing is it?", the answer being given not by christening it "Topsy" but by determining a common name for it as a member of a class in a determinate classification, by finding a value for the variable in accordance with rules; the second fails to complete "this cow is...." even in the way entailed by the truth of "this is a cow".

In either case, if particularity and existence are admitted, we can recognise that the statements have a function like asking a question, a question which we know must be answerable. We can treat the first as setting an empirical problem of finding what sort of thing is in question by finding out more about it, further true attribute statements; we can treat the second as assuming defining propositions and saying that other attribute statements must be true and are to be sought. In each case we are asserting general logical or metaphysical truths about classifiable individuals, truths which we "exemplify" long before we can state them. Our discussion of them will culminate in the next chapter.

6. Much of what I have argued from an Aristotelian point of view in rejecting Descartes' Socraticism hinges upon

the difference between the features and roles of terms as they function in actual discourse and the features and roles of ideas and notions in thought. The question is not of a difference between grammar and logic or between speaking and thinking; what is at issue can be put in its boldest form by saying that none of the terms in discourse, and no "ideas" which correspond to those terms, are simple.

Descartes' claim is that an analysis of actual thoughts results in simples, and that unless it did, unless there were notions wholly grasped in being grasped at all, there would be no possibility of thinking. The simples are constants, and thinking is the addition of constants one to another; it is like elementary arithmetical addition, in which if we watch what we are doing, make sure we see clearly and distinctly what we are doing, there is no possibility of error.

That we are unconscious of these "simple notions" when we are born, that we are unconscious of them in our actual thinking, that there is great difficulty in making any sort of complete list of them, does not perturb Descartes. "Complex therefore simple" is an eternal truth. If X is complex, then the idea of X can be analysed into a set of ideas "thing", "attribute a", "attribute b" etc., and the idea of a can either be analysed into "e" and "f" or it is simple, i.e. unanalysable. If we attempt to preserve predication, as Descartes and Locke do at times - Descartes' doctrine of "inspection and comparison of ideas" leads on to

Locke's replacement of syllogism by "intermediate ideas" which permit "connections" just to be seen - then we preserve "thing" as subject, and the implication is that "a thing is ϕ ", where ϕ is a simple notion, must be thinkable, must be graspable or understood in isolation from any other thought.

Correspondingly "a thing exists", "a thing is red", "a thing is perfect", must be intelligible thoughts in isolation from each other and any other thought, and this is what I deny. "A thing is red", "a substance is red", or "a subject has the attribute red" are meaningless if "thing" is a constant or if "red" is a simple notion, or else this mode of thinking is entirely different from our familiar mode. Connected with this is the rejection of syllogism, which not only is unnecessary in the new "thinking" and the new language, but will not work in the new language; and connected with this is a contempt for classification, which appears as something anyone can do "in his head" - although doing it in one's head can never produce an existential guarantee for any member of any class.

What meaning the "primitive propositions" above have, I claim, depends upon the terms being terms in a developed language.

(a) It is true that the question "Does X exist?", when "X" is a noun, can be formulated as "Is there a thing which is Y?", although the condition of this is that "All X are Y" should be true; it is true that this helps to avoid the negative answering in the form "X does not exist", which has

worried philosophers because the existence of X seems to be asserted in denying it (this indicating how widely is accepted the entailment of existence on the part of the subject of any true statement); and it is true that "All X are Y" can be written as "If there is a thing which is X (or correctly called "X") then the thing is Y". But the last "thing" that could be meant by "thing" here is a simple, attribute-less subject, and no simplicity is implied of Y. Part at least of what is being emphasised in framing definitions or universal propositions is that no matter what characteristics things we encounter may have in addition to the defining characteristics which permit the name "X" to be used of them, or the "Y" which is true of all things X, "All X are Y" is true. The word "thing" has a use in our actual procedures which demand thinking, in our discriminating and classifying and defining. It is merely false that we "know" a thing to be of a kind because we conceive "thing" and one attribute as adhering to it, and can then wonder or do then wonder whether or not the thing exists; and such a "thinking" would have no relevance to our procedures of searching for things to determine whether or not such things exist or do not exist.

Even if it were an account of thinking, the principle "if ϕ is an attribute then ϕ must be instantiated" would be useless to settle our wondering - we need something more than a disguised propositional logic. Granted that we know ϕ to be

an attribute, that we have an idea of ϕ to correspond to the name "given to it" in our language, it would follow that ϕ is instantiated because all attributes must be instantiated. "There is a thing and the thing is ϕ " would be necessarily true, and neither existential doubt or wondering would be possible. Seemingly we could be in error if ϕ were complex, but being in error is dependent upon ϕ not being an attribute at all.

Yet if a and b are simple attributes, are completely grasped independently of one another, there could be no principle which determined that a could not go along with b, which determined that a and b could not "adhere to" the same substance-thing. The assertion that they do not cannot be argued to from a principle, and entails that there is a thing which is a and another thing which is b. We deny the co-adherence of a and b by asserting that no thing is a and b, or that no thing which is a is b. It is this double predication which, along with the existential entailment, makes it plausible to say that we can name the a-thing and the b-thing "X" and "Y" and assert "No X are Y" - and only now can we speak of inherence and non-inherence.

The denial that a thing is both a and b is in some sense a fact claim, even if it is still insisted that "thing" is inferred from the non-occurrence together of a and b. This is dubiously intelligible as a formulation, and suggests that the thesis with regard to "thing" cannot accommodate factual disjunction or exclusion. It seems to

work only if we can give a meaning to "there is a quality in that place", and we will have none of the things we familiarly speak of unless we can also give a meaning to "there is a number of qualities occurring in that place". Philosophers do talk glibly enough in such a way, but while their language suggests a lot of "things" collected together, what is strikingly absent is any account of the relation of "togetherness" - they illustrate what they mean by statements like "the same apple is red and round and firm", i.e. by commonplace predicative utterances which, converted by re-formulation into "red and round and firm inhere in the same substance", gives an apparently empirical statements which is apparent empirical nonsense. The word "inhere", in the empirical mode, indicates a relation of substances, and in the "ideal" mode it indicates a relation between "ideas" which are distinguishable only as complex and contained in a complex.

An erroneous judgment about an individual, denied by "the thing which is x is not y", actually demands that a number of statements be also true of the thing which is x, i.e. statements of all the attributes and relations which the existing thing has as an individual, statements which need not be made although it is clear to the natural light that they must be makeable. What for the rationalist who begins with simple notions is a sheer impossibility, the construction of a complete individual thing "in mind", appears

to the realist-empiricist as the impossibility of ever completing our account of an individual, the starting point being an observation stated by using indicators like "this", "that", or "there" with "thing". The Empiricist proper seems to offer a beginning with "the quality there". When Descartes denies that substance and existence are directly known, he rejects the realist- empiricist claim, but only by changing the notion of "thing" since "thing" there must be. Thus he recognises the Empiricist claim, which promises via "attributes must inhere" a knowledge of individuals until the theory of perception which backs the initial claim brings attributes as collections into the mind or puts qualities into mind and leaves the thing outside and unknowable.

In general, philosophers who talk of qualities as occurring present as a discovery "things are constituted of qualities", and presume that ordinary modes of speech remain unaltered - compare the article on Substance in the Encyclopaedia of Diderot and D'Alembert. Nouns still figure in relation statements, existence statements, and statements like "a river is made up of such and such attributes". Rationalist and sheer empiricist are alike in offering an analysis of nouns in ordinary statements, taking for granted that they are meaningful and operative. Each presents us with analytic necessity and synthetic mystery or impossibility; statements which are the result of analysis are necessarily contradictory in the sense that each of them can be presented as saying to the other "thought is impossible if we can only begin as you say". Their statements are intelligible

and intelligible as contradictory while we can relate them both to accepted thought, and this is quite in accordance with a claim that the terms they employ are terms in a meta-vocabulary, terms in either logic or grammar, which would be meaningless unless there was a subject matter for the sciences of logic and grammar and if the sciences did not truly describe features of that subject matter. The subject matters we can indicate broadly as "thought" and "language", and the procedure of either science obviously does not restrict itself to "analysis" in the Cartesian manner. It is a matter of history that the terms "substance", "subject", "predicate" and "attribute", as well as others which are vital to Descartes' metaphysical discourse, derive from these subjects, and that the only analysis of thoughts which could result in the isolation of these terms would be "technical thoughts" which already contained them.

On the other hand, that "existence" should have a use in relation to the technical terms would, in terms of the nature of grammar and of logic, be rather surprising than not. At least we should expect that it would need a new sense or use as against that which permits of "horses and cows and qualified things exist, while centaurs and hobgoblins do not". If "things" as a class term for horses and cows does not belong to a technical language, then "things exist" is clearly meaningful; and there is no reason for saying that the singular of "things" in this sense is identical with the logical term "thing-substance-".

subject" of logic. Indeed, for the statement of logical propositions we can dispense with "thing" and with "substance", and if we do dispense with "thing" we can recognise that it plays a special role, not in fact statements where it can also be dispensed with entirely, but in questioning and in types of argument which are essential to inquiry.

(b) Any individual thing will have a complex description. This statement is, I claim, meaningless as a statement in isolation from other statements, unintelligible as a "primitive thought", and capable of illustration but not of analysis into simple notions. It is intelligible or can be made intelligible to anyone who is familiar with describing things, and this describing of things, whether we have to learn to do it or just "know" how to do it, preceded our ability to use the term "describing" of the process or "description" of the result. How relevant is Ryle's distinction between "knowing how to do" and "knowing that" in connection with "having an idea of" I shall stress below - that we do think propositionally, think thoughts in which there are predicate terms and subject terms, does not entail that we understand the words "subject" and "predicate", and for the sophisticated the distinction between "thing" and "description of the thing" is bitterly difficult to draw. But what is to be stressed here is the clarity to the natural light of any speaker of English past the stage of early childhood of the statement: "We can say of this apple that it is round, red, firm, juicy, that it is fruit, is vegetable, is on the table, in London,

beside the orange with the cut in the skin...."

The "elements" in the descriptive statement are not "things" which constitute the apple in at least anything like the sense that the stalk, the skin, the core and seeds and cells are such things. There is, I shall argue, an important sense in which we can identify the apple qua individual with the account which is true of it, or with the set of propositions which are true and in which the phrase "this apple" occurs; but a grammatical analysis of a complex statement or series of statements about an apple, which includes the distinction of verbs and prepositions as well as nouns and adjectives, is very different from the "material" analysis of the apple which can be performed in a laboratory with instruments, although the results of such an analysis can be stated as part of the account which can be grammatically analysed.

The analysis of the "idea" of "this apple" corresponds to the grammatical analysis, not to the investigation of this apple in a laboratory, although the latter leads to an amplification of account and "idea"; and while it seems plausible to say that the framing of a statement is a synthesis and ordering of words, the grammatical complexity is enough to show that "addition" in a simple sense does not describe the process of synthetic ordering at all, except in the obvious sense that there are many words in the account. The statement "a thing is round and red and firm" looks like a synthetic ordering, but quite clearly (a) it may be understood correctly as a statement about any member of

a class that is much wider than the class "apples"; (b) it is meaningful and an "anchor" to thought because it can be expanded into "this thing is somewhere, somewhen, related to other things, exists and persists...." just as "round" expands into "has one of an infinite variety of sizes and none of an infinite variety of shapes", "red" into "scarlet or crimson or....", and "firm" into "when touched will yield only so (indefinitely) much". If "ideas" are to work at all, then ideas will function as words function - and indeed the function of words for the understanding is what is meant by the functioning of ideas. The latter are to relate the simple identity of sounds and signs with the variety of uses in contexts and situations of sounds and signs.

We approach the identification of Ryle's "talking about talk" as "talking about words-in-use" or about "the uses of words", and the idealist's "talking about thought" or "thinking about ideas in thoughts". But the role of "ideas", serving to make possible or to explain the relation between identical words or signs and the different about which they are used, is no longer possible when the ideas themselves are termed simple identicals. The ideas, in relation to "understanding", function very much as "participation" functions for Socrates in relating manifold predicates in propositions, predicates given in ordinary use the same "name" and the thing "really named".

When objective idealists claim that a predicate term is different in the case of each different subject to which it

is applied in a true statement, what they have in mind is connected with this. In the statement "some apples are red and round and firm", "red and round and firm" applies differently to apples from the way in which it applies to billiard balls and balloons. We can say, if we like, that "round" only applies roughly to apples, or that we have to understand "firm" as "the way in which apples are firm", have to understand "red" as the complicated way in which apples are red in contrast with the "simple" way in which pillar boxes are red. If the statement "some apples are round and red and firm" consists of words which are simple, correlative with statements like "apples are apples", "round is round", "red" means "red", or "red" is the name of a single quality", then ideas have to take up the enormous amount of slack between the simplicity of the statement qua relation of simples and the complexity of what is understood to be stated, i.e. what is effectively understood.

Treat "ideas" as simple, however, and we have to have a new set of ideas to take up the slack, or "relations of ideas" will not function in the thought which is familiar to us as human beings.

The idealist claim is over-emphatic, pushes a point so far that universality may be denied and with it the function of adjectives in discourse, but the general point is that if predicates are simple, and denote simple attributes, then either our statements describe nothing or what is described is nothing that exists in the world around us.

We can see the force of this directly if we insist on the geometrical sense of "spherical", the physicist's sense of "firm" applied to once popular atoms, and the limitation of "red" to a point on a colour chart: we must then assert that "some apples are red and round and firm" is simply false, and we should be hard pressed indeed to discover any thing which could be described as either red or round or firm, let alone all three.

There is a moral here for scientists who, distressed by the "plasticity" or ordinary concepts, seek rigid concepts whose identity is clear and invariable. But traditionally the problem of "Forms" for Socrates presents itself as a denial that "perfectly \emptyset " is true of any existing things, and the contrast between "perfectly \emptyset " as idea and " \emptyset " as an attribute of a variety of things is the contrast between simple notions and the "ideal thinking" done by a soul in another world and notions in thought which function in this world.

What is to be stressed in the idealist claim is that when the subject is provided as a noun in the language, the predicates function also. "This apple is round and red and firm", "this billiard ball is round and red and firm", "this balloon is round and red and firm".....the differences in the predicates emerge from the seeming identities in the predicate terms as soon as the subject is given. It seems true that we can replace the nouns by "thing" and reduce the nouns to names of the things described by adding adverbs

and adverbial phrases to the adjectives, just as we can recognise the differences I have already indicated; but it is true that we approach a complexity of discourse which threatens to become unmanageable, that when we have made our distinctions there are still distinctions to be made further, and that however much the idealist's phrase "identity and difference" or "difference in identity" may fail to explain why our search for simples fails, it indicates cogently enough a feature of our language in use. Our discovery that differences can be noted which we did not note although our statements were meaningful and functioned as statements is not a discovery that our language or thought functions imperfectly and of a new way of thinking or speaking, but a discovery of features of our thinking and speaking. One of the features is that "thing" functions as a class term, that apples, balloons and billiard balls are members of the class, so that wherever a noun which designates a member is written then "a thing" may be written.

Having discovered this, we shall not be at all surprised by the ease with which we can transform all statements into statements with "thing" in the subject; and we can then retrace our steps, put values for the variable, members for the class, and make statements using nouns other than "thing", in accordance with our previous classification - in which the things are classified in terms of recognised predicates or attributes. This is precisely what Descartes does when he asserts two classes, "thinking things" and "extended things",

minds (which do think) and bodies (which are extended), except that he ignores any question of an original classification, of words belonging to a language with complex inter-relations of meaning and function already established, and he fails to establish exclusive classes or classes which together constitute the class of classes because of his failure to understand the nature of real classification.

If he claimed that he was reporting as a matter of fact what a pre-natally known Platonic heaven of souls and geometrical bodies was like, he can scarcely be confuted, though it is apparent enough that we should want further information about what souls were like and the explanation of some geometric terms before we understood his statements as an account. "Thinking" and "extended" provide characteristics, but we have nothing as yet to classify. If we admit as coincidental that the heavenly language can be translated into ours or coincides with part of the vocabulary of our human language, we will be struck by the need in heaven for only three nouns and a limited set of verbs ("thinking", "being", "moving") and adjectives ("extended", "figured", "triangular") - with the addition of the name "God" and the adjective "perfect" for theological purposes; but we will equally be struck by the need for a large number of prepositions whose use in heaven is clear to us (a priori), by the use of "bodily" or "bodies" as a predicate or attribute of "geometrical particles" and of "these extensions", by the

ease with which "minds" and "bodies" can be replaced by "things", by the way the nouns "refer" to different members of a class indifferently, the adjectives to different individual things which can be identically triangles, identically figures, yet different as triangles and differently figured as triangles.

And we will, if we are acquainted with Aristotelian logic, be struck by the facility with which we can now assert that no minds are extended, no bodies think, although we cannot say that no things think, no things are extended, since we can falsify this by reference to minds and to bodies.

All that has been done, it seems, is to substitute a limited number of nouns for our galaxy of nouns, a limited number of adjectives for our galaxy of adjectives, a limited number of verbs for our multiplicity of verbs, while no immediately apparent restriction has been placed on prepositions and conjunctions. Grammar and logic, moreover, appear to be unaltered, and what problems these presented before still present themselves. They present no problems while we treat them as solutions, as principles which "minds" know how to apply in relating notions without needing or being able to formulate them. The principles are like faculties, not notions; they are the faculties which can be in minds without the mind's being conscious of them and which can only be known in or after exercise. That is one of the reasons why they can be stated only as relations between variables, and if the values are the simple notions of the

Regulae, our statements may be held to remain the same only if we also recognise that what is stated is completely different, that what we ordinarily say exist do not exist at all.

(b) Let us consider "A thing is perfect". This seems to be a meaningful statement. If I deny it, however, what am I denying? Am I saying that no thing can be perfect?

If so, what I am denying is not "a thing is perfect" but "some thing must be perfect", although I am shown to be wrong when you produce some thing in which there is no "flaw or defect". But if you can instance such a thing, then whether or not that thing is perfect is a direct issue of actual attribution, and the issue is whether or not there is a flaw or defect. The production of such a thing is not made unnecessary by your argument that if there were no such thing "perfect" would not have a use, that "perfect" is not really an "idea" at all. My rejection of your instanced thing as imperfect, while it may be held to show that I "have an idea of perfection", have a use for "perfect", is adequately presented as a denial that your instanced thing can be described without any variation or modification in some specified or implied manner.

Once our attention is directed to such a claim it becomes rather apparent that our "simple notions" have a genesis which is unaccountable in terms of the philosopher's established disjunction "universals or resemblances". Any attribute term " ϕ " just does describe, or is just part of the

definition of "straight" which is purely non-description, of a number of perceived things, so that we are continually being presented with things which are generically identical. Rulers, table edges, knife blades and kerbs are all straight. Trees and grass and cloth are all green, and just green. But when we have discovered or been forced to note that there are relevant differences, that things are differently straight or differently green, our classes of straight and green things are restricted and new terms may be introduced or adverbial modifiers introduced. Developing discrimination enforces the development of thought and language from the rudimentary distinctions which first demand thought and language. Initially "red" is contrasted with, say, "blue" and "yellow" as "coloured" is contrasted with "black or white"; "straight" excludes "crooked", and "perfectly" applies in an odd fashion: once we have noted distinctions we can say "we thought such things were perfectly so, and we now know that we were wrong", although "perfectly" was no part of our earlier thoughts; and while, because of our geometrical interest in the regular we do not pay attention to "perfectly crooked", we do quite obviously introduce "degree" when we talk of "very crooked" and "this is more crooked than that".

We cannot, in fact, give a meaning to "perfectly crooked", and as soon as begin the process of rejecting this and that as not perfectly straight we rapidly approach

since we can decide to give the name "X" to any thing which is

a geometer's definition of "straight" which is purely conceptual and fails to fit even the most carefully drawn construction. It is not suggested that we have not many problems here, but what is apparent is that we do not start with the geometer's concept, and that if we did so start we should be geometers from the beginning and would find "crooked" to characterise all things in the world around us.

"Simple notions" again fail us in accounting for actual thought. But the statements to which we give meaning here are "a line is perfectly straight", "something is perfectly so". "Perfect" functions as a qualifier of, or as a predicate for, such subjects or things as circles, solutions to problems, works of statuary, functioning machines. "Perfectly" functions as an adverbial modifier of "round", "straight", "executed", "functioning", if these are specifiable instances of roundness, straightness, executing, functioning, if they can appear in statements of the form "this thing is or does such". When we speak of "a perfect individual" we mean, and must mean, perfect in respect of some general features or feature shared with other members of a class.

"Perfectly" is concerned with the degree of an attribute or attributes which, if that are attributes, some thing has - in the loose sense; strictly, some thing can be said to be them or do them. "A thing is perfectly Y" has an intelligible predicate as soon as Y is given a value; it becomes in a sense equivalent to "X is perfect" as soon as the value is given, since we can decide to give the name "X" to any thing which is

is Y. But if Y is a single instance which justifies the name, "perfectly" is meaningless; "this which is Y is Y" is all that we say with "this which is called X is Y", and we have no meaning yet for "this X". And again, if Y is a simple notion, or an attribute which justifies the application or use of a simple notion, then "Y" is perfect, and anything named in virtue of it will be a perfect X. If Y is a complex of simples, the argument will still hold; any thing which is Y and therefore abcd will be perfectly abcd and perfectly Y.

This sort of discussion would perhaps be much more impressive, though it would not be altered, if it were presented in terms of conventional denials that a member of a class or species or a genus could be more of a member than any other member, e.g. that a man can be more or less of a man than any other man. This is not only meaningful but true; yet its only point is that degree is irrelevant to classification as it functions in science, that classification insists on the identity and disregards any difference or question of difference in determining classes. Nothing is implied of the complexity or simplicity or reducibility to simples of the class-term or genus-term. We do in other contexts talk of "a real man", of men as "scarcely human".

What is clear is that "perfect" has no meaning in relation to simple notions, which admit of no degree, admit only of assertion or denial by the assertion of a logical

opposite. This is in large part the foundation of the "method of perfect thinking" in the Regulae, a method which we can label "perfect" by contrast with familiar imperfect thinking; an extended thing can, if extension is a simple attribute, be only extended and not imperfectly extended; a thinking thing is likewise impossibly an imperfect thinking thing. Of course, in the latter case Descartes has no hesitation in later indicating a range of species of "thinking", or in insisting both that we all have the power to think equally with each other and that for various reasons we do not all exercise the power to the same degree.

We mere mortals, who think in mortal fashion, have a use for "perfect", especially in the case of "thinking", and from this Descartes' methodology and metaphysics take their departure; we have a use for "perfect" again as soon as "figure" is added to extension and we can talk of things which are so extended. In the heaven of forms "perfect" has no use. Similarly we have a use for "participation in a form" wherever we can give a meaning to "degree", but in the heaven of forms "participates" would have no meaning or a different meaning - presumably there is a plurality of like things and the "form" is repeated identically in many instances, and there is no difference between "form" and "instance".

Logical propositions like "X is A" implies "X is not non-A" are not denied - they are common to ordinary discourse

ility, but we must always fail, and we can always

and to "infallible thinking", the difference simply being that in the first case we give values to both X and to A in order to make statements and the "plasticity" of X and of A can be demonstrated in various statements containing both X and A in their instances, while in the second case it is presumed that there must be entirely non-plastic simple notions in the initial thoughts, so that we can never begin with values of X at all. We begin with "thing" and real attributes, and all nouns are reducible to "thing" and such attributes.

It is not difficult to see how relevant this is to Baconian science or to Platonist science; but it is equally easy to see that measurement can be related to such science only if the forms admit of degree, and thus how a contradiction must be engendered between the rationalist method and the empirical method, between the "ideal" and the "actual". Thus we find contrasted the conceptual "such is perfectly so" and the empirical "you will never find a thing which is perfectly so", and the latter can be evidenced by innumerable examples of familiar things which, for example, are called round but can be shown to be imperfectly so. The conclusion seems obvious: no nouns of ordinary discourse will figure in "scientific propositions" at all. We can try and mask this by talking of "application", the "necessary error in measurement", and "unknown" or "unmeasured" factors, or by talking of statistical ranges and "probability", but we must always fail, and we can always describe

in non-technical terms the conditions and the features of observed things, thus providing an explanation of why the Cartesian ideal is not experimentally attainable.

Now the argument "if a thing or substance is perfectly round then it exists" holds of any thing which is perfectly round, but it is not in any sense a contradictory of "if a thing is imperfectly round then it exists". The hypotheticals are instances of "if any thing is such then it exists", and the existential claim is suspended by the form. Once it is established that some thing is such, then the hypothetical formulation loses all its force in the circumstances. Once we have refined our concepts, as in a developed science, the scientist may well be ready to assert that if "X" means "a thing perfectly such" it follows that "X does not exist" is true. "X" is the name of a scientific entity, a useful fiction, not the name of a thing, and "X is such" is not a fact statement.

"A perfectly round thing is a perfectly round thing" makes no existential claim, it may be argued, and yet it is a statement which is true and which in certain contexts may have a point; but "The perfectly round thing is a perfectly round thing" either does make an existential claim or is an abuse of language - it amounts to (a) the assertion that the thing in question exists and is perfectly round, and (b) the disguised tautology "'perfectly round' means 'perfectly round'".

And this is exactly what we get if we name the perfectly round thing "X" and then say (a) X does exist

and (b) "X" means "a perfectly round thing".

We get something very different, however, if we are concerned with questions of whether billiard balls, balloons or apples are perfectly round. The things can be distinguished from one another, can be discriminated independently of the characteristic which is questioned, and the same is true even if we are concerned with imagined or conceived balls and balloons and apples. Indeed, most of Descartes' uses of "conceive", in spite of their association with "imagining" in the case of bodies, means no more than talking about things without sensing or perceiving them, this naturally not entailing that sensing and/or imagining was not in fact a necessary precedent of the conceptual (i.e. discursive) consideration of them. Once we include the nouns which are values of "thing or substance" we know what we are talking about, are actually "thinking". We can give some sort of account of the things of which we are talking as well as understand what is being said about them. It is this "giving an account" which is both a condition of understanding and of the things in question being "real" things with a multiplicity of characteristics.

The statements "the thing called "God" is supremely perfect" or "God is supremely perfect" preserve the existential claim, and are meaningful only if we can make the assertion that God or the thing called "God" is different from all other things - Descartes' use of "the thing" implies, if vaguely, that the thing is so different. (Part

of the vagueness is due to the treatment of God and mind and body as substances, and its being taken for granted that mind and body admit of plurality of number while God does not. "There is one God" is a piece of information not mentioned in the argument). What we are to understand is that God is supremely perfect in the way appropriate to God, and not in the way appropriate to any other thing, or in a way appropriate to God and impossibly appropriate to any other thing. Alternatively, we could say that until we are told that it is God in question we do not know what "supremely perfect" means here, or that until we have grasped the idea of God we have no idea what "supremely perfect" means.

Descartes seems to sense the difference between the roles of "perfect" here, and in the case of either "thinking" or "extended" he is content to write of them "inhere in a substance", a mode of expression which he replaces with "the substance which we understand to be supremely perfect". If, as I have argued, "is \emptyset " is the primary use, this matters little, since the technical use can be presented as "is \emptyset "; but the change does suggest that "perfect" cannot constitute the complete account of a thing, is not an adequate predicate if "a thing" is the subject. The same conclusion can be reached directly by recognising that "inheres in" can at best mean "is part of the true predicative account of", i.e. that "inheres in" is not a substantial relation, and this is true of "thinking" or of "extension" while we should feel inclined to add that "perfect" was

it is intelligible, simply false.

still somewhat differently placed since it seems to be about the predicative account.

What the recognition leaves us with is that if \emptyset is an attribute of a thing, it is one attribute along with many others, i.e. " \emptyset " is one term in a description that can always be given, and if "a thing is \emptyset " is meaningful and true, "a thing" indicates a subject of which an account can be given. We have the same situation as arises from the Cogito - "Whatever else the thing is, it is \emptyset ", "Whatever else the thing is or does, it thinks", "Whatever else the thing is or does, it is extended", and (with a difference again) "Whatever else the thing is it is supremely perfect". What we name if the statements are conceivably true or false is "the thing whatever it is", which becomes "the thing whatever else it is" when the statement is understood as true. Even in proffering the definitions we seem to be asserting "unless it is perfect it is not God", "unless it is thinking it is not a mind", "unless it is extended it is not a body"; we can state these as "no thing is X unless it is Y and there are things (or is a thing) which are (or is) Y". The definitions, in other words, seem to be concerned with classification of individuals whose existence is taken for granted and whose complexity does not demand mention, individuals which have a complex account. That such individuals are reached by a synthesis of vacuously simple notions I have denied; that they are reached by a synthesis of "thing or substance" and a simple predicate term is, in so far as it is intelligible, simply false.

Chapter IX.

Qualities of Mind.

Descartes claims that qualities of minds are more clearly, and better, known than qualities of bodies. From qualities the existence of a substance is inferred. What are the qualities in question?

The main aim of the chapter is to show that by rummaging in all nooks and crannies of Cartesianism we find no such qualities presented.

1. Acts, powers, do not qualify for being called "qualities", nor do relations. Acts and powers can be discussed best in considering Aristotle.

2. The various uses of "mind, spirit, intellect and reason" as faculty, thing with faculty, act and object demand different answers to "what qualities have minds?"

3. In general it is what is thought that is regarded as non-corporeal.

The difficulty of treating a thought "p" as other than "object" parallels the difficulty of insisting upon "I think p" or "x thinks p" and still talking about "thoughts". But we can talk intelligibly about p and q and r as thoughts, and the thoughts belong to science or possible science. Yet it is difficult to give a meaning to "in the mind" or "not in the mind" in this intelligible context.

4. The status of "to nothing no qualities or affections belong". It can be related to human activities, and to "ideas" if these are related to such activities.

5. The relation of "inferred substance" qua idea to simple natural science and the things it studies. Phenomenalism and natural things.

Things and their accounts - and the relation of logic, metaphysics and science to such accounts. A meaning is given to "categories" as classes of statements in the account of an individual.

6. "In mind" and "in thought" in relation to Descartes. Like "l'ame" and "la pensee", they are not interchangeable.

7. A plausible way of getting to things "in mind" or "forms of mind", with the presumptions stated. Even when this is related to a variety of types of cognition and cognition-statements, qualities are still of things and not of minds. Beyond acts and contents we find in Descartes no attempt to indicate qualities of mind at all, and it is impossible to identify "mind" with "I" or with "objects" of verbs of which "I" is the subject, i.e. of "my" acts.

" It seems not only useful for the discovery of the causes of the derived properties of substances to be acquainted with the essential nature of those substances (as in mathematics it is useful for the understanding of the property of equality of the interior angles of a triangle to two right angles to know the essential nature of the straight and the curved or of the line and the plane) but also conversely, for the knowledge of the essential nature of a substance is largely promoted by an acquaintance with its properties; for when we are able to give an account conformable with experience of all or most of the properties of a substance, we shall be in the most favourable position to say something worth saying about the essential nature of that subject; in all demonstration a definition of the essence is required as a starting-point, so that definitions which do not enable us to discover the derived properties, or which fail to facilitate even a conjecture about them, must obviously, one and all, be dialectically futile".

Aristotle. De Anima. 402b. (Smith).

" It would seem that not only is the knowledge of a thing's essential nature useful for discovering the causes of its attributes, as, e.g., in mathematics the knowledge of what is meant by the terms straight or curved, line or surface, aids us in discovering to how many right angles the angles of a triangle are equal; but also, conversely, a knowledge of the attributes is a considerable aid to the knowledge of what a thing is. For when we are able to give an account of all, or at any rate most, of the attributes as they are presented to us, then we shall be in a position to define most exactly the essential nature of the thing. In fact, the starting point of every demonstration is a definition of what something is. Hence the definitions which lead to no information about attributes and do not facilitate even conjecture respecting them have clearly been framed for dialectic and are void of content, one and all."

Aristotle. De Anima. 402b. (Hicks).

"But what am I? A thinking thing, it has been said. But what is a thinking thing? It is a thing that doubts, understands, affirms, wills, denies, refuses, that imagines also and perceives. Assuredly it is not a little, if all these properties belong to my nature...."

Descartes. Meditation II.

"....qui doute, qui affirme, qui connaît peu de choses, qui en ignore beaucoup, qui aime, qui hait, qui veut, qui ne veut pas, qui imagine aussi, et qui sentje suis assuré que ces façons de penser que j'appelle sentiments et imaginations, en tant seulement qu'elles sont des façons de penser, résident et se rencontrent certainement en moi..."

Meditation III. French version.

Qualities of Mind.

According to Principles I. X, which reasserts the claim that qualities are observed and substances inferred or "guaranteed" by an intuited principle that attributes cannot be of nothing, the more qualities of a thing we know the better we know it, the qualities of mind are known more clearly than the qualities of bodies, and are obviously more numerous than known bodily qualities, since every act of thinking reveals qualities of mind. The whole principle I shall quote below, since I want to draw attention to many special features of it.

Now it should be clear from the discussion above that this claim is of the greatest importance to Descartes and to theory of mind as substance, and I suggest that it is exceedingly obscure what these clear and numerous qualities are supposed to be. If qualities can be indicated which could not be qualities of a man, i.e. if we can indicate adjectives which would not be intelligible as predicates in statements of which "man" was the subject, then much of what I have been arguing would be simply dismissed. We could then make classificatory statements about minds, and statements about their activities would, like the classificatory statements, be verifiable fact statements. Moreover, with corresponding intelligible and verifiable fact statements about particular bodies, we should be able to understand that certain types of relation between minds and bodies were necessary and capable of empirical discovery. i.e. we should be able to grasp certain relations as possible relations of mind and body.

Let us note that while it is true that Descartes can be said to leave us with the problem of "How is the mind related to the body?", he in fact supplies us with a large number of relations. Only sheer ignorance of Cartesian texts can explain the perpetuation of the myth that Descartes thought the mind could not act on the body or vice versa. What is concealed by the conviction that Malebranche was Descartes is precisely the merit of Malebranche in seeing that the relations which Descartes himself found clear and distinct and clearly and distinctly necessary were, on Descartes' thesis with regard to the nature of the soul, unintelligible. He parallels Regius in taking a central thesis of Descartes seriously and accepting the consequences, and both men present what would be anathema to Descartes. Both indicate plain contradictions in the heart of Descartes' theory; both perhaps saw something of the extreme peculiarity of Descartes' proof of mutual interaction after the fashions (a) if I feel pain when I see my body is injured, then the action on the body must continue until there is action on the feeling-soul, or (b) if I will to walk and as a result of willing do walk, then the willing agent acts upon the body which is moved in walking.

Both accept, as I deny, the intelligibility of the soul-account and the body-account. What I have argued is that statements such as those in (a) and (b) above are man-statements, and Descartes is in fact arguing that our man-statements are intelligible and true. It follows that explanations of man's activity must explain man's activity - our mind-statements and body-statements, then, if they are explanatory, must

necessarily be related to our man-statements. From this point of view Descartes' error is simple enough: p and q must explain r if p and q are explanations; p and q are explanations, devised by Descartes, therefore they do explain. Since they do explain, body and mind must be related, must act on one another. But must here does not mean do; the necessity in question is the necessity of showing how they are related, what sort of action is in question, and until this is done we have no explanation. My protest here is my protest against many rationalist explanations, that the explanatory thesis is not, as it is claimed to be, "p and q", but "p and q explain r", and the crux of the matter occurs when the p-system and the q-system are conceptual and in fact derive their meaning from the statements in r, i.e. the commonplace fact statements.

The protest cannot, however, be directed in any simple fashion against Descartes, since he claims, at times, that the mind-statements are fact statements, and from this point of view we have several accounts of relations : as identical with I, the mind can perceive bodies, the blade that penetrates my body and the body of mine which walks when I will; as an unextended substance, attached to the pineal gland, the mind is acted on directly by the gland, which is directly or indirectly acted upon by motions transmitted by light or bodies through bodily parts, and now it never sees bodies; and the mind, infused into the body, is related to the body in an "intimate" way of union, a way which slowly but surely as we proceed to the Passions de l'Ame seems to extend the

soul in such a way that the incorporeal may have extension.

What is clear, in any case, is that if the soul can be said to be a substance, its attributes must be specifiable. What are they?

(I) If we are concerned with powers and passions, or with distinctions between the species of thinking qua acts, we are concerned with factual truths which can be stated with "I" as subject, or with "you" or "that man" as subject, and (I have argued at length) there is no purely logical justification for the conclusion that it is not a man who thinks and feels and has powers to act in certain ways, but a mind, i.e. that the thing-substance which is subject of all such statements is really a "mind". Descartes succeeds in providing no arguments which demand a substitution of "mind" for "man", and he gives, so far as we have considered his writings, no characterisation of minds which would enable us to describe the minds which so act, or can have such powers, or be so passionate. Briefly, he wants to replace "men think" by "minds think", and he has not told us what the minds are that replace describable men. Accepting "privations or negations" as positive simple notions would be "useful" here, but it certainly is not adequate: "a thing not-extended" is as vacuous as "a thing not-thinking".

With the logic and meaning of "power" statements I shall be concerned below; Aristotle was clear as to both, and they can be dealt with in connection with him. If there were space, we should go on to consider in detail how an intelligible doctrine of faculties is developed, and perverted by

the reification of faculties into "things"; how the perversion which once dominated philosophy persists in the work of important schools of psychology, members of which, correctly establishing tasks of different kinds and performances of those tasks, imagine that by a mathematical treatment of measured successes in performance of those tasks they are penetrating to "minds" and "qualities" or "constituents" or "factors" in minds. Spearman, for example, appears to vindicate Descartes completely, with his discovery of a fundamental mode of thought, essentially ordering or relating ideas or finding missing terms in relations of ideas; he establishes the persistence of capacities to perform such orderings in individuals, and of a statistical structure of such capacities in populations; but just as the point of departure is what individual humans do do, the point of arrival is what individual human beings can do, and the heading to Spearman's work is "The Abilities of Man".

(2) I have already indicated how Descartes, in replying to Hobbes, stresses that he uses "mind, spirit, intellect or reason" for what is endowed with the faculty of thinking; and he goes on to point out that the two first commonly, and the latter frequently, are used in this sense. He insists further that "thinking" and "walking" are disparate, because "thinking" may refer to an action, to a faculty, or to "that in which the faculty exists" - for thinking the Latin gives cogitatio, and the translation is difficult, because it is difficult to make sense in any language of what is being asserted.

In claiming that Descartes treats "mind" as the subject of statements of the form "x thinks", and so with "I"; that he distinguishes species of thinking in a manner compatible with "thinking" being always an act of an agent; that he talks of "thinking" as a power or a variety of powers; and that he treats "mind" as equivalent to "what is thought"; I have been expanding what is involved in the simple statement above. Thus "mind", or its synonyms, is thing, act, object, and power, and as object it is either *Ma Pensée* or *La Pensée*.

But the expansion is only the beginning of elucidation of difficulty. First, "attribute" means something different in the case of thing, act, power, and object, if it is meaningful in each case. Second, the identification of "mind", "spirit", "intellect" and "reason" seems in any single sense quite unjustifiable - if each has the faculty of thought, and thought is generic, we should have to speak of the intellect willing, the reason sensing, the spirit imagining. What Descartes seems rather to mean by "thinking" is reasoning and understanding, and the core is a tautology like "the understanding (thing) understands (act) what it understands (object) because it has the power to understand"; we have alternative names for the thinking thing, perhaps some species for the act and so of the power, and the objects will be the notions and relations of notions which is rational science.

When difficulties loom, Descartes can avoid them by reverting to "I" as the subject of "thought that p", and then

all species of thinking can be restored, and with them their different classes of objects - things sensed, imagined and dreamed. I have recognised that "I thought that p" is an attribute-statement in a very loose sense - it is part of the historical account of me. I have also claimed that it cannot be a complete account of me, and, correctly considered as an act, is something which at a specific time I did. The same holds whatever species of thinking is in question. This is familiar usage, and there is nothing to make us surrender our use of "man" as a subject, nothing to make us say that "man is a spirit which makes use of a body" - a statement which to me is nonsense, and to Descartes a meaningful statement which he has, in Meditation VI, proven false.¹

The question I wish to raise now is a different one, and introduces us to a different notion of substance, one which is quite incompatible with the identification of "I" and mind-substance.

(3) It is, in general, because what is thought is regarded as obviously immaterial, and as contrasting with corporeal or material existents, that it seems both plausible and obvious that the thinking subject is immaterial, and that thought as what is thought, as object, is substantial and immaterial. The foundation of Cartesian metaphysics is the discovery that p, which is thought, is merely thought and a thought; and from "a thought is only a thought, and there must be a thinker," together with "I who think p am the thinker", the conclusion is held to follow "I am only a thinker". Bodies are material,

1. H and R. II. p. 102.

thought that p is possible without any awareness of bodies even if p contains a bodily term, thoughts are immaterial, and I who think without an awareness of existing material things am immaterial.

The looming difficulty is the obvious possibility that bodies may be merely thoughts; for the thinking thing there can be no distinction between its thoughts and what they are of. By treating sensing and imagining as distinct from thinking and as providing the "bodies" which thought is of, Descartes avoids part of the difficulty, and leads on to a doctrine that bodily-images are actually corporeal structures in the brain. Until these are introduced and made objects of attention, the mind, in so far as its thoughts contains bodily terms, seems to be doing something very like using words which it could not understand.

If we follow philosophers and ignore these questions, the plausibility of treating thoughts as immaterial is easy to indicate. No statement, specific or generic, in Descartes' two major classes of thoughts as "thinkings", is complete without an object, and we have to say "I think that p " or "I doubt that p ", where p is propositional in form: if we are to talk about thought or reasoning or understanding, we can do so only by talking about propositional thoughts or statements. If anything is in mind here, it is the thought or thinking that p , the doubt or doubting that p , the argument or reasoning that r if p and q .

If p is a proposition like "cows are quadruped" or "the sky is often clouded" (since we do not need to be aware of present skies or clouds in so thinking) then we can say, as with any thought, " p is thought", " p has been thought", "someone or some thing thought p ". Without noticing any difference we can go on to say " p is a thought", "someone had the thought p in mind".

To be consistent with what I have argued at length above I should have to argue that the chief reason why we notice no difference is that there is none - the final formulations are equivalent to the earlier. I shall be consistent.

The first formulations are directly related to the eternal truth "there cannot be a thought without a thinker", a truth which the natural light reveals to us as ~~soon~~ as we have learned to understand that to say "someone thought p and yet no one thought p " is to talk nonsense - and this precedes our understanding that it is not nonsense but metaphysics; not someone and so no one, but a mind of someone, or, as in Berkeley's case, someone's mind and God's mind. The naked revelation of the natural light does nothing to preclude my general argument that in the case of any actual thought, that there must be a thinker sets us, if it sets us a problem, the problem of finding what man, what person did so think. Equally it does nothing to preclude the traditional philosopher's difficulty over the impossibility of thinking without a p , of talking and thinking about thinking without talking and thinking about propositions and their relations, which does not

seem to be talking or thinking about thinking at all.

Before any p or q or r, any member of the class of thoughts, we can write "I think", "or someone else thinks", and "thinks" is the only connection we can find between the "thinker" and any of his "thoughts". But equally there seems to be no "connection" - "thinking that p" is thinking, and the only account we can give of thinking; reasoning is "thinking p and q and that r".

If we considered this in full detail, we should have to consider how "thinks that" tends to become "believes that", and how "x thought that p" is related to "p is a thought now, a foundation of a science". "Belief" ties a thought to individuals, "thinking that" sets a thought free to become a part of objective science - the odd expressions are forced upon us because of peculiar questions asked, and I am claiming that there is no mystery about "x believes y" or "p is a scientific theory" until someone analyses them to make them clear.

One familiar philosophical path now concerns us. p and q imply r; if I think p, I need not think q; if I think both I need not think r. Implication belongs to "thoughts", not to "thinking". As soon as we talk of p and q and r, of relations of succession in one place, or of togetherness in an argument, or of togetherness in a science, we are talking, it has seemed to philosophers, of "things", things which do not behave as do cows and calves and caterpillars. We are talking of things which occur in minds, and only in minds, viz. thoughts. They are things whose order and logical relations we can note, and

both order and logical relations belong to the things, not to us. And so we seem to be led to, or driven to, talking of things in minds and contents of minds, of operations which go on in minds and "acts" or "processes" which are "mental" and "internal".

These "thought-things" attract one another (for philosophers like Hume who were impressed by Newton and physics), or they agree and disagree (for philosophers who prefer politico-human models); but Hume and Bradley, as I suggested in the introduction, agree that over and above the "contents" or "filling" of minds it is nonsense to talk of a mind. Taken literally, this is fiendishly obscure. If p is a thought, somehow we have to make a distinction between p and both what is aware of p and the being aware of p ; " p is aware of p " is neither intelligible nor helpful; and if we can talk only of p and q and r , saying they are "things in minds" is saying nothing. On the other hand, all the Laws of Association can be stated in the form "Whenever anyone thinks p and then thinks q there will be a certain relation a, b or c , between p and q "; and in so far as " x thinks p " entails " x is thinkingly aware of p " and does not entail " x is perceiving a thing- p ", " p is in mind" can be treated as equivalent to " p is thought"; so that accepting "men think" seems to throw light into deep recesses - though not of minds.

If we follow the path, however, we are confronted by the fact that even if "the cow is quadruped" is true, "the cow is quadruped" is a proposition, a thought, a judgment, and while red quadruped cows eat grass, propositions and thoughts

do not. Since our distinctions of subject and predicate can be made only in judgments and thoughts (subjects and predicates do not eat grass, occupy space) these seem to be "psychological" terms. Just what sort of "psychological" terms they are, just what they classify or name, is a matter for head-scratching, and schools disagree, without being very informative in their disagreement. But there must be such things, and the subject-predicate relation is somehow intuited, a law of mind or thinking, something which acts on..... but whatever it is, however it operates, the result is that elements are related in a way that constitutes a "thought", a "judgment". These are indubitable existents, which can neither be seen nor dreamed nor imagined; they are inconceivably extended or bodily or "in the world".

If we contrast the thought "there is a red cow walking across the green field" with the confronting situation of a red cow actually walking across a field, however, we seem to need a distinction between subject-predicate and substance-attribute to convey the difference between the thought inside and the situation outside the mind. Thought and situation correspond, or are structurally similar - only thus can we give a meaning to true or to real or to occurring. Elements in mind may not correspond exactly to the elements in the world when they are complexes of elements which do correspond exactly. Non-correspondence of elements-in-patterns is what we mean by falsity.

We can find such interpretations of Descartes, not

completely out of keeping with my detailed account of Descartes above. Dr. S.V. Keeling, in his Descartes (p. 236 and fn), insisting on the importance of the Regulae doctrine in later writings, insists that "simple notions" are "ontal elements" which correspond to, are represented in, "distinct ideas". Philosophers have not been slow to point out that the second or real occurrence has to be thought and "a thought" to be related to the first thought, and that the difference can only be "thinking that" in the absence, and "thinking that" in the presence, of an object which is independent of thought, and some have concluded that we can think only thoughts, and can never know that we are thinking about things. We can, in other words, never know that our ideas represent, that our thoughts correspond.

If we are minds then seemingly this is true - that p is true we can never know in the ordinary (and perhaps illusory) sense of true. Descartes paves the way for Berkeley by using metaphysics and God to give a proof that this sense of true is not illusory after all; but even after the proof he seems clearly to deny that the presence of any relevant object can be known in the sense that is required to establish the difference between "absence" and "presence". Most of our ideas of bodily features "represent" nothing, correspond to nothing, are not "ontal". He seems to deny, for example, that "there is a red cow walking across a green field and I am watching it" is literally true, to deny that we can watch such things.

In fact he denies that such things can be watched because

situations like red cows walking across green fields could never occur. That there is such a thing before my eyes is an inference I make which is always invalid; that there is some kind of thing so present is true, but it will not be a red cow walking across a green field. "Seeing red cows" is like dreaming; in recounting a dream I describe the "things" which, in their behaving, constituted the dream. Dream-objects "fill" the mind, differently from the way that thoughts fill the mind (if it is the same mind).

That anything exists except what is in my mind in this container sense is at least dubious, and if it is dubious, what is certain is that they exist in my mind as they appear to me to exist. They never, of course, appear to me to be in my mind, and so I believe that they exist outside my mind; but this is naive illusion, shattered by metaphysics, physics, and the identity of "objects" in what (naively) we distinguish as dreaming and perceiving.

It will be remarked, at this point, that I have lost my "subjects" and "predicates", "substances" and "attributes"; in fact I seem to have lost thoughts and ideas. They are indeed extremely difficult to keep track of when we are concerned with thinking about things in the world or problems in science or sensing and dreaming. But that the conclusion in the paragraph above is a philosophical conundrum is evidenced by three hundred years of philosophical argument.

It is vital to note that the method of doubt depends initially on the difference between veridical perception and

dreaming, which establishes that there is a meaning to "the centaur does not exist" in the case of, though not in, a dream. Once the difference is denied, the only meaning we can give to exist in the case of bodily things is "exist as they appear to us" - in our language, for the mind, "to exist" is "to be imagined or dreamed". The Dubito seems to work in the wrong direction for Descartes - instead of the existence of men and horses becoming dubious, the existence of men and horses and centaurs becomes certain in the only sense of "exist" possible to the subject if the subject is altered by the denial of two distinct activities, perceiving and dreaming.

My belief that a cow exists and a centaur does not, though both were "present to me" a few hours ago, is connected with my expectation that if I walk in a certain direction I will see, and can touch or kick or frighten, a thing of a certain kind called (in English) a cow. This is not what, or all that, the statement "I believe a cow is walking across the field" means or implies, and there is much to be said here in considering many possible questions; but if no one could walk and see or touch and try to frighten or kick, the statement "a cow exists and centaurs do not exist" would be meaningless. This is at least part of the reason why it is meaningful to a man and meaningless to a mind, even if the mind speaks the language of men.

What Descartes in fact has to do is to replace the distinction between sensing and dreaming-and-imagining by an

absolute distinction between dreaming-imagining and thinking, and thinking is the activity of a mind which speaks and understands the language of men. If we look closely at the first dozen Principles we can see that he maintains this (apart from the abuse of the pronoun "I") by treating "men can suppose that they are minds and can follow out the logical consequences of this in the language in which the supposition is made" as if it were the same as "minds can imagine that they are men, and as the men they imagine themselves to be they can imagine other bodies and that they are variously and sensorily related to those imagined bodies". Only thus can he enable the "thinking thing" with its language to think or speak about anything bodily at all, to have ideas which, if bodily, are of anything.

What seems clear about these arguments is that however clear and distinct they are to minds, they are dubiously meaningful to men; but this does not seem to be the case with the Principle with which we began, namely Principle X of Part I.

- (4) "It is highly manifest to the natural light that to nothing no qualities or affections belong; and accordingly that where we observe certain affections, there is a thing or substance to which they pertain (French version ne dont ils dependent). The same light also shows us that we know a thing or substance more clearly in proportion as we discover in it a greater number of qualities. Now it is manifest that we reach a greater number of qualities in our mind than in any other thing; for there is no occasion on which we know anything whatever that we are not led with much greater certainty to the knowledge of our own mind".

The stress on the pronouns is mine. Throughout, the early Principles assume inter-personal discourse in order to prove that it is metaphysically meaningless.

What does the first part of the "argument" indicate?

You and I, men and women, Harry Hawke, old uncle Tom Cobbeigh and all, know very well that if we say "is black" and forget to mention the night, the cat or the horse we "have in mind", then we say nothing. We know quite well that it is nonsense to say "I encountered or observed blackness (or quadrupedity) as I walked up the road; I wonder whether there was anything there that was black or quadruped?" - though it is intelligible to say "I met or observed something black (or quadruped); I wonder what it was?".

We all know, if we can think at all, argue at all, that if someone can say of horses only that they have four legs, however clear this may be to him, he knows very little about horses; and if he says "horses have four legs" while running his hands affectionately over the legs of a table, he has a very indistinct idea of horses. If he never said "horses have four legs" when there were horses about, we should say he had no idea of horses; but if he ignored tables and concentrated on cows and deer and rats when he made his regular utterance, we might say that he had a vague idea, an indistinct idea, of horses, that he was not very clear as to certain distinctions though others he grasped.

We do not mean, at this familiar level, that there is a little thing in him or in his mind called an "idea", which he cannot see very distinctly, or which he sees clearly and which is itself indistinct; or even a thing which needs more delicate moulding or colouring or strengthening with an infus-

ion of intensity from an impression or pressure from animal spirits to "fix" a pathway of channels in the brain. In not meaning this we reveal, in an odd way, an understanding of what philosophers' uses of the word "idea" actually meant, and many philosophers have clearly failed to realise that this is what their usage meant. Thus "having an idea of X" is equivalent to "is able to recognise X" - just as in other contexts it is equivalent to "is able to think of X in relevant circumstances". Nowadays we tend to concentrate on "is able to recognise X and act appropriately in its presence", and to find or to fail to find problems with "is able to act appropriately in the presence of X", i.e. when "recognise" is omitted. Again we have a specimen of rationalism when "having an idea of X" is said to explain recognising or thinking appropriately etc.; patently there is no explanation, and perhaps this is what prompts talk of animal spirits and tubes, neural pathways and currents, or "mental entities", and the "models" here are always clear by the very contrast with the obscurity of how they explain anything at all.

If we could not teach him to do better than say "horses etc." in the presence of cows and deer, we should regard him as a natural fool; but if we believed that nobody ever observed anything but qualities and affections and inferred the co-occurrence of things with them, in so far as he did use the word "horse" we should have to admit that he had an acute logical mind which always correctly inferred "substance and not nothing is to what four-leggedness belongs", but that he, as distinct

from his mind, was a natural fool.

What we would mean in saying that he was a natural fool is not that he thinks exactly as we do, all the thoughts that we do, and that he has not learned to talk properly or cannot learn to translate ideas into words, but that he cannot think in certain ways at all. We relate this to statements like "he cannot tell the difference between a horse and a cow" and not to statements like "he can observe all the attributes present in a horse or cow, but he infers the same substance in each case".

(Let us note the wide range of Cartesian theory: on the logical thesis, he can only infer the same substance, must infer it, and does so validly. But suppose he is deaf and dumb, and uses no words to us. If he goes out to get milk, and sits beside any quadruped that he first encounters, from a table to a horse, and continues to do this, he is a fool, cannot discriminate or learn to discriminate; but if he does learn to discriminate and ends by sitting only near cows, he "operates" successfully, is behaving intelligently and thinking adequately, on the view I am putting forward. "What", asks Descartes, "is he doing that an animal could not do?", and if we consider seriously a pup that learns to drink at one bitch's dug, there is little. Hence his conclusion follows that this whole activity is purely corporeal, a matter of mechanical reflexes, a series of motions, effects, fluxes of animal spirits and hydraulic pressures in muscles.

What receives insufficient stress in writings on Descartes

is that he is prepared to recognise that we are much, if not most, of the time precisely in this situation - we need not be thinking or reasoning about what we are doing. In the case of the deaf and dumb person, for exactly the reason that we could not have information about whether he did or did not think in the presence or in the absence of objects, we cannot, on Cartesian grounds, assert that he is more than ~~an~~ machine, i.e. that as well as being an animal he has a mind.

I have heard the deaf and dumb example offered as a negation of Ryle's thesis about thought as silent speech, since here we have an example of "thinking" where no speech is uttered or understood. Much of what I have said is like what Ryle seems to be saying, and a comment is demanded. Granted that he goes out to get milk, there is no reason for Ryle or myself to deny that the behaviour is intelligent, that it involves discrimination and learning to discriminate; no reason for either of us to deny that much of the time we are acting intelligently we are in this sort of situation, and not (as Descartes recognises) thinking or reasoning about what we are doing intelligently. If he does not go out to get milk, if there is no question of purpose, there is no question of intelligent behaviour, and on the purely bodily thesis of Descartes, there is no room for purpose at all. Having a purpose, however, is not equivalent to saying or thinking "I have a purpose"; and it is when we get to the stage of saying or thinking "I have a purpose" that philosophy can begin to talk about concepts and meanings and logic. This

is the level of "mental activity", the kind of "thought", with which philosophers have traditionally been concerned. Here one of Ryle's theses seems to me to be clear: if we discover logical features or principles as a result of examining stated thoughts, it is neither true nor necessary that those features or principles were known to us prior to the thinking which exhibited them. To this thesis the deaf and the dumb, like the fool, are irrelevant, and it is the principles which concern us directly here).

The two principles, that no attribute is of nothing and that the more properties we know the better we know the thing in question, amount to what? Neither is a principle which the visual or sensory light could reveal to us, though we say that we just see that a cow is red or quadruped. One way of stating what is asserted is that the principles recognise that thoughts, like statements, are propositional, and that knowledge is propositional - that we measure knowledge as an account by the statements that can be made truly by someone about a specified subject. If we were testing someone's knowledge of horses, we should certainly expect statements in which "horse" appeared, and statements in which "horse" appeared as other than the subject. Unless we were dealing with infants who had been "taught a lesson" of an elementary kind, we should expect statements about riding and driving and feeding horses, statements of relation and possible relation; and once we get to a serious study of horses we should expect classificatory statements to achieve

some detail and precision, and statements about the organs and skeletonic structure and musculature of horses to be included.

(5) At this point the thesis that the "substance" whose components as parts, and their constitutive relations, is being discussed is an "unknown" or "simple thing" inferred from observed "affections or qualities" appears to be nonsensical. The substance we dissect and after centuries of developing techniques and theory which converts a mass of meat and hard lumps and bones present in detail as an anatomist's horse is still a horse; and even we who know little of anatomy would, if a "phenomenal" horse was punctured by a knife and immediately exuded a gas and collapsed in balloon-like fashion at our feet, be quite satisfied that it was not a horse that was punctured.

Many things may be said of this. It is not "part of our idea of horse" that within a surface it is materially uniform. Perhaps it was once, perhaps children think so, but either is extremely doubtful, and both are certainly wrong. Our language and its terms are saturated with recognitions of complex structure in things classified. Organs, dissected out, are shaped things with colours, and in virtue of this they are things with qualities, but they are not named simply as such. We have to strip even rudimentary knowledge down to the point of glancing at a coloured model or coloured plate with the name "heart" and no text on label or page to get "thing shaped and coloured"; it is only the knowledge of accepted convent-

ions in the use of plates and models which enables us to frame the necessary truth "all hearts are limited extensions" or the peculiar truth "all hearts are so shaped", where the "so" functions as a universal at best because of its extreme plasticity. Single-substance terms like "flesh", "living tissue", "protoplasm", or multiple-identical substance terms like "cells", are established and replaced as investigation proceeds; what was once uniform for biology - protoplasm - was complex for chemistry and its "instances" obviously distinguishable in form and structure for biologists. No man ever made a fire by breaking sticks, fashioned clay, ate animal food or even vegetable food, without discovering non-uniformity and structure within animals and vegetables.

This, as I have indicated earlier, seems to me of metaphysical and epistemological importance. If epistemologists are genuinely concerned with a problem of knowledge, of how men come to recognise and talk and argue about things in the world around them, there seems to be little point in supposing that "what knows" is an undescribable thing which is capable only of "sensing" from the outside things already determinate, already having complex accounts and descriptions. There seems to be little point in assuming that "what knows" can always read an invisible label on "things", think "orange" and "snowball" and "horse", and must then undertake the task of analysing to show how it constructed "a horse" or a complex idea of "horse" from a shape, a colour, a touch, and perhaps a sound or a smell.

We can, in some sense of "suppose", suppose that we started on life's journey with a sack full of ideas, or that we were a sack full of ideas; but unless we mean by our initial ideas such entities that the thinking we do is, as we know it, meaningless, this need not prevent us from recognising that the verbs "touch", "taste", "look", "feel", "listen", have a meaning and use as well as the related and difficult forms of speech like "aware of a touch, a taste, a look, a feel, a sound". We need not be prevented from recognising that the active verbs indicate what we have to learn to do, along with discriminating, examining, investigating, observing, studying, and along with handling, moving closer to, altering, wandering through and among, and along with eating and riding and cutting, and using for a host of purposes.

In particular, we need not be prevented from recognising that the form philosophers insist upon has a place in the general language - the verbs take the same subjects as do active verbs - I see a "look" and I look at a tree; men are deceived by appearances, and men can tell eggs from elephants. The traveller who discovers after arduous hours that a mirage is not an oasis is forced to think and to change his account of what to him was obviously so, of what previously "seemed so". Making mirages fit into his world is a difficult business, and this is correlative with making certain statements fit into an account with other statements, making "mirage" fit into a functioning language. The traditional move of stating that mirages are "things in mind" fails to help us at all

because our difficulties in fitting minds into accounts, "mind" into functioning language, are more acute than those of fitting mirages and "mirage". Indeed, at the level of "sensory presentations", the role of minds is to "locate" mirages, the location being necessary because we accept it as true that the statement "there are three palms and a pool two miles ahead and clearly visible" is falsified by an attempt to approach, i.e. by the contradiction between "approach" and "walking two miles ahead".

At the level of discursive thinking, the mind is the location of "thoughts" and of "ideas", and as the location of thoughts the mind is the location of accounts which are constituted of thoughts. The thought or statement "that is an egg" is intelligible; it seems to me to entail the truth of some such account as: "That was laid by a bird, has a shell and at least one yoke and 'white', and is the sort of thing that can be boiled or fried or poached or used in making cakes; it is the sort of thing that can be bought in shops, may be fertile and capable of hatching, and will drop and make a mess if broken". On reflection, I realise that I am too much influenced by breakfasting; some eggs are laid by reptiles, some have a leathery skin, some are perhaps useless for cooking, many species are not and never will be sold in shops.....and if I am looking for an "essence", for a statement true of any egg, anywhere, I seem to tend towards a biologist's definition in terms of a role in a breeding cycle of certain

classified species, a rôle which "wind eggs" fail to fulfil. Following the Descartes of the wax argument, we can term this purely conceptual, but the "purely conceptual" finds its meaning in complex accounts of species and breeding, not in simple notions. And even if we term all the predicates of the statements included in the account of "egg" or "an egg" predicates or attributes, they are predicates or attributes of eggs, not of "minds".

Of course, if someone points to a hen's egg on a table and I, being introduced to eggs, see only an ovoid white solid, what alone I can think is "An egg is a thing which is white and ovoid"; I do not know that I am concerned with "one hen's egg", and if, after seeing, I imagine a white ovoid shape, I designate it "an egg". The account is the same: "A thing white and ovoid". Suppose now we reverse our order, and make the imagining of a white ovoid thing first in time - what justification can there be for calling the imagined thing an egg, or a hen's egg, or anything at all? Or for claiming that the account is of anything beyond "a thing white and ovoid"?

To something like this "imagining" epistemologists reduce "sensing"; and it is to accounts like those of the imagined egg, analysed into accounts of things with certain sensible qualities, that Descartes and Locke direct their attention. They do not hesitate to universalise, to convert the account of "this thing" into an account of all things of a like kind, and Descartes is clearly headed for the

reduction of all such accounts of bodily things to "thing and extended" or "thing with limited extension", just as he is headed, with his logical analysis, to "thing and attribute", and with his identification of perception and dreaming to "image of", where "of" is meaningless.

If the epistemologist's question is: "How do I infer from the appearance of this object from one or a series of points of view in one or a variety of lights, though my movements to different points of view and the variety of lights cannot be stated as part of the argument, and from touch-sensations which must be stated without reference to movements of my limbs and fingers, that there is something which is correctly called - in English - an "egg"?", then he seems to be setting himself riddles in a language which he already understands, and whose established uses he is rejecting. If what he is concerned to show is that these statements of sensory occurrences, which include no thing-statements, are never enough to justify a thing-statement or an existential claim, he should by now have very little difficulty.

What seems entirely mythical is the notion that anybody has managed to give a meaning to sensory-statements independently of thing-statements in the ordinary fact-stating tongue. The arguments to the existence or occurrence of entities corresponding to the adjectives of commonplace discourse which begin with thing-statements about bodies and organs, or about veridical and illusory perception, or waking

and dreaming, are scarcely arguments if the conclusions are contradictories of the premises or if the argument takes us out of the language in which our premises are stated. And as I claimed above, if we are minds which are directly aware of the members of the class "adjectives", of "red" and "round" and "cold", we have still to "discover" that the terms which designate the experienced redness and roundness and coldness are adjectives. And so with quality, attribute, predicate; these are technical terms whose meaning is located in a thing-language and its statements, and once the directly experienced things can be labelled with the technical terms, our problems are solved. I comment only at this point that "sensation", "impression", "datum" and "sense-datum" are technical characterisations; that "the observer can see only part of the surface of a body" is a sophisticated form of fact statement which accepts as primary a statement about bodies and surfaces and observers; and that the technical uses, difficult enough to grasp in ordinary circumstances, are completely evasive to discussion when it is added that what senses, is impressed, receives a datum, or observes is "a mind", and that all the terms refer to something that happens to, or goes on in, a mind. We have now some sort of thing-language, which enables relations to be stated, and the logical or metaphysical structure of what is now said in giving an account seems identical with the structure of our ordinary discourse.

What does this mean? If we accept our thing-language

as meaningful, whatever problems it may give rise to, what we are confronted with, in the case of the dissectable horse or the investigable egg, is the fact that several distinct types of statement are involved in the account of the thing. This enables us to indicate what is meant by one use of "categories" - our simple descriptive statements which enable us to make simple classifications of things come under the category of substance-quality, and they must be expanded into the category of substance-relation and into the category of part-whole, before we have anything like adequacy in the accounts.

If x is a particular kind of thing, then statements of these different types can be made about it, though the actual statements of each type will be different in the case of different things. A china egg and a hen's egg may have exactly the same quality statements made truly about them; except for the complication of mutual relations between the two eggs, they may have exactly the same relation statements made of them if we are concerned with location or position; the part-whole or structure statements will be different, and discovery that these statements are true may be possible only if we are permitted to break or attempt to break the eggs; and historical relation statements will be different - hen's do not lay china eggs, though they may be devoted to them. Further, no attempt of a hen to hatch chickens from a china egg will be crowned with success - and the philosopher's treatment of this as "merely contingently necessary" and

not "logically necessary", because he finds it conceivable that china eggs should be hatched, seems remarkably like the claim that the philosopher can do what the hen cannot do. The hen, of course, is not concerned with "conceptual eggs", and if eggs were only "things white and ovoid" then a hen's sitting on an egg might have many consequences.

The immediately important point is that, just as our logical and grammatical terms are technical terms, the category terms are technical, and meaningless unless there are meaningful statements in which the technical distinctions can be indicated. Descartes' frequent identification of "substance" and "thing" points to an important feature of our commonplace use of "thing" as a technical term which appears in familiar discourse in questions and not in answers; but it also draws our attention to the complexity of uses of "thing" as more than the logical subject of quality statements and as a class of all classes of existents. The technical terms have nothing whatever to do with whether "p", whatever category it comes under, is a thought or a statement, since we are concerned with what is thought, what is said, and there is no distinction between these.

If we are concerned with what is truly thought or said, then we are concerned with Scientia and with Reality. Ryle's insistence on "doing logic" as "talking about talk" is logically indistinguishable from the more familiar insistence on "thinking about thought", or Descartes' "considering our thoughts", and his insistence is pointless except as an insistence that logic is not psychology, not an empirical

rational science of what goes on in minds. With his insistence should go a rejection of the mystical trinity of "things" which are named thoughts-ideas, sentences-words, and substances-attributes, a trinity somehow always contrasting in the richness of their contents with the poverty-stricken world of mere things, which can at best be spoken of or thought about and "have" attributes. In claiming that talk of categories and metaphysics is also concerned with what is truly thought or said to be (and thus we have a foundation for necessary features of what can be merely thought or falsely thought to be) I am extending the claim already made for logic; and I am insisting that neither logic nor metaphysics is a rational science of necessary truths which demands an extraordinary language or an extraordinary world to give its truths a meaning.

One clarification can now be made: the distinction between subject and predicate or substance-term and attribute term can be made in the case of any proposition, and the distinction is necessary for purely logical purposes at a very general level, e.g. when we are concerned with the proposition as true or false, or with presenting a formal schematisation of inference types which operate whatever the category of the proposition. There are strong reasons for refraining from using "substance" for "subject" when we are concerned with true-false or general inference; if we are concerned with inference patterns peculiar to certain categories (as, for example, with relation statements) the use of "substance" has

some justification. We are equally advised to refrain from using "attribute" at the general level, and, for a similar reason, it is advisable to refrain from using "subject" and "predicate" when raising category questions.

But, whatever our decisions here, the terms are throughout technical, and at no point will it be intelligible to make existential claims with the technical terms. Things which can be said to exist are things of which accounts can be given, and logic and metaphysics are concerned with the nature of the accounts and so with the nature of the things accounted. The accounts themselves neither can provide.

(6) We began with the question of attributes of mind, and quite apparently are now talking of attribute-terms which appear in thoughts which are components in the accounts of things. And so far we have encountered no things which can be said to be in minds whose attributes are other than their own, i.e. belong to them and not to minds. Descartes' point has either been dodged, or we have shot past it.

The French version of the Principle in question reads, in the final sentence:

"Or il est certain que nous en remarquons beaucoup plus en notre pensée qu'en aucune autre chose que ce puisse être, d'autant qu'il n'y a rien que nous fasse connaître quoi que ce soit que ne nous fasse encore plus certainement connaître notre pensée".

Here as elsewhere we begin with "notre âme" in the heading, and encounter only "notre pensée" in the text. The Latin version tends to give mens throughout, but what we find, qualities or affections, are not mentis, but in mente.

I cannot prove that these alterations (and sometimes additions) were not just the responsibility of Abbé Picot, but Descartes knew and approved the translation, and the changes are in keeping with one of the things in which Descartes is really consistent, namely insisting on distinctions as of vital importance in an argument, and denying those distinctions or ignoring them when necessary truths have to be given a meaning, variables given a value, in order to expand into science. *Res sive substantia, l'âme ou la pensée, l'âme ou l'esprit, mens sive anima* - sometimes these are the same, and disjunction indicates alternative use, sometimes they are so different that disjunction indicates false belief and true belief, obvious truth and nonsense. In the Regulae, I have pointed out, the insistence is upon *Notions* and *Scientia* and La Pensée; the *Cogito* depends upon penser, cogitare, and not upon la pensée, cogitatio - except that la pensée and cogitatio are, as in us, immaterial. *L'âme* is "ce qui pense", "I" am a thinking thing, a thing that does think and can think; whatever the thoughts may be, this is true, although for every thought "p" there can be a thought "I think that p" which must be true.

Now it is only in relation to an "actual p" that the subject-predicate, substance-attribute distinction can be drawn, and it can be drawn no more relevantly to any p or q than to any other p or q. If we work from "quality or affection" by the natural light to a substance, the existence claim derives from "actual quality here". The argument applies even if, in order to make the extension-argument more like

the thinking-argument (in replying to Hobbes, for example), we treat "extension" and "thinking" alike as activities (actus). If we are seeking qualities or affections or attributes of mind, we are seeking meaningful statements of thoughts of which "mind" is the subject, just as if we are seeking qualities of "I" we are seeking statements which are meaningful and have "I" as the subject. So with any "thing" - we want predicates which can be meaningfully used with the thing as subject, or those which can be used with the particular thing (a thing of a particular kind, and an individual) as subject.

If any proposition "x is y" is entertained and so in mind, the quality "y" is thus in mind; but this is very different from y being a quality of mind, and it is very different from y's being a quality of thought. "Extended" is a quality which I have in mind when I think "bodies are extended", but it makes no sense, on Descartes' view, to say "mind is extended" or "thought is extended". In the Regulae the question is of notions of attributes in us, notions of attributes which the mind (or the man) attached to notions of substance in order to form thoughts. True, alongside the notion of bodies and bodily attributes there are notions of minds and mental attributes; but the position is extremely complicated. On the view I have argued for, all notions can be treated as concepts in *Scientia*, and statements including them will be part of our account of the world. The notions we have, and statements about minds and statements about bodies will be simply true

and each in the same sense of true. The objectivity of Scientia demands no statements about us in relation to it. Knowledge, stated, needs no reference to a knower, and no theory of notions qua notions. But the "purely intellectual things" which are "called simple in relation to our understanding" are presented as "knowledge, doubt, ignorance ..(and) the action of the will which is called volition", and we have to be victims of the Socratic hypnosis to believe that this is simply intelligible.

We may say "the only subject of verbs like "knowing", "doubting", "being ignorant of", and "willing" is "the soul", remembering that for Socrates and Descartes alike the question seems to be of True Knowledge, Justifiable Doubt, and Love of Truth Determining Acceptance; but "ignorance" is, if a state of the soul, a state of not knowing what is true, and the possibility of ignorance establishes that what is true is independent of the soul. What is to be discovered is what is so, and the result of search and discovery is knowing that what is so is so. Both willing and doubting are concerned with the acceptance of p as true or rejecting it as false, and whether it is true or false does not depend upon my willing. All the verbs are incurably relational, all demand a distinction between what knows, doubts, wills, does not know, and what is so and can be known to be so.

The relation, however, is intelligible only if we can specify the terms, and both terms. We have to be able to indicate, and so to discriminate, "what knows" and "what is

known", "what is ignorant" and "what is unknown". And at this point it becomes painfully clear that "what knows" and "what is ignorant" are not answers to "what knows?" and "what is ignorant?". Substituting "the thing or substance which" for "what" adds nothing, and without more ado "naming" the thing-which helps us not at all.

At this general level of discourse we rely on the natural light, and there are corners it reveals itself as incapable of negotiating. But the difficulties seem to disappear largely when we substitute "who?" for "what?", while "knowledge", "doubt", "ignorance", "willing", lose neither force nor meaning. What is nowadays called "their analysis" presents problems, but once we have really surrendered the belief that all verbs have one meaning and a different meaning from other verbs many of the problems will appear as solutions. We have no difficulty in understanding a scientist who says: "This.....is the problem I am confronted with, and I don't know the answer", and the same scientist later saying: "I know the answer now; I worked it all out last night", or "I know the answer now; Peterson has discovered that the filters we were using were not the ones we had sterilised". "I", "we", "Peterson", appear as values, the statement of the problem, and its solution, appear as values, in the statements of relations between variables "the knowing thing knows what is known", "the unknowing thing is ignorant of what is to be discovered", "the knowing thing knows that it is ignorant of.....".

This sort of argument might be regarded as irrelevant if "there are minds which know" and "there are bodies which are extended" are taken as scientific hypotheses; but the first term of the relation has to be characterised, has to be given "qualities or affection" before the relation is intelligible. But Socrates and Descartes alike do as I have done; they drop at will from the "abstract" statements to the use of the first personal pronoun, and this enables them to bring their statements into a host of familiar statements about themselves and the world, including statements about bodies and their own relation to them and theorising about them.

Both of them frequently accept as obviously true my statement "men use "I" of themselves in discourse"; both of them seem to divide statements with "I" as subject into three classes, those which have special senses of cognitive and volitional verbs as predicates (I - a soul), those which have ordinary senses of both sorts of verbs ("I love women", "I watch men go by my window", I - a man), and those which have non-cognitional and non-volitional verbs (I tripped, I threw out my hand to protect my head without thinking)- and here "I am a body" tends to become "my body did it".

These are Descartes' three substances, souls, men and bodies. When the first is reached by the Dubito, we reverse the suggestion of the Regulae that notions belong to Scientia and that whatever is thought is true; we begin with what is thought to be true and, qua dubious, may be only thought. By the time we have reached the purely thinking subject,

all thoughts except "I think and exist as a thinking thing" are merely thoughts, and none of them are independent of the thinking thing. Our general uses of cognitive verbs have been altered or rendered meaningless, and if we are to admit thoughts that a bodily thing is such (as we must), we have to treat the thought as something in mind, the belief that there is such a bodily thing independent of us as in mind, and metaphysics is to justify the belief that there is a thing in the world of extensions corresponding to the thing as a thought-thing. The thought is not a pattern of "notions", but a complex "notion-of" made up of "notions-of".

Notions qua notions are undescribable, have no features. They can be grasped, intuited, inspected, analysed into notions only as of. At the very heart of the simplicity, "having a notion of 'extension'" is not "thinking 'extension'" but being able to think it at particular times. What the notions are of, in combination, constitute "thoughts" which, whether there is or is not corresponding to them a "real occurrence" which converts the subject of a thought into a substance, are "in mind", are "merely thoughts". If the thinking-thing of the Regulae is the simple soul reached by the Dubito, then what is thought is Thought independent of anything outside Thought and (difficult as it is) independent of the thinking thing which thinks them "one at a time".

My use of "them" is ungrammatical and intentional. The relation between "thoughts" and "Thought" seems to be inexplicable. Admit plurality and temporal order, and what

makes the succession possible is a persisting subject who thinks the thoughts; treat the thoughts as logically or otherwise related, as constituting a system or systems, and they become self-sustaining within a system or systems. Once "thinking" becomes a kind of "perceiving by a mind", thoughts somehow must be considered as making up a world in the way that visible objects make up a world - we see them successively and in relation, but they just "present themselves to us" in relation even if the relations are not completely given. Similarly with dreams - we are confronted with things and events in relation, though not all the relations are given.

(7) I cannot claim that what has been said in the previous section is readily intelligible; it represents an honest attempt to discover what talk of ideas and notions and minds and content of minds actually means in relation to a system or systems of beliefs held by men and stated in a language familiar to men. If we drop all notions of analysis, of ideas and notions, and talk only of thoughts, dreams and sensible occurrences, we can, I think, see why "contents of mind" appears to be meaningful. We can begin with what can be at least roughly called "experiences" which everybody has, and consider them only under the category of substance-form instead of subject-predicate or substance-attribute.

The sensible world, considered only as seen, presents itself as coloured shapes, spatially related; and both the shapes and the relations (which are also volumetrical) change.

We can accept it that if all the extensions had different colours, or even no colours, the extended world would be as it is; and each particular shape differs from other shapes only in form. Space, then, is a uniform stuff which assumes and irregularly maintains a variety of forms. They are forms of space as body.

This, too, is true of dreams, although if we know they are dreams the bodies only seem to be bodies. Until we discover that we were dreaming, the bodies are to us bodies. And so with thoughts - they are substantially identical as thoughts, different in form as thoughts.

True, we may have to pause now to get our breath back. But we can then continue. The changing shapes in the extended world can be explained satisfactorily by positing little extensions or bodies which do not change, but move and change their relations, so that contours of collections change. The changing forms of thoughts can be explained by positing little unchanging notions which change their relations and patterns, producing different forms of thought. If we are troubled by the arithmetical numerosity of minutes as explanation of the geometric, we can accept the geometric as obvious, the plastic forms as we encounter them. Indeed, the little bodies are difficult with dreams; but if we neglect them, dream things are just like bodies only not bodies, dreamingly extension in forms only, as images are "apparently extended".

If we are wrong about "perceiving" bodies, and in fact we dream them, then there are only "dream extensions"; and if the

of this is accepted, we must accept it that the sensed forms are forms of "sense" whether or not they are also forms of "real extension", or akin to dream-extensions while corresponding to real extensions. If "our senses tell us nothing of the reality in things", of the existing minute particles which affect us or our senses by their motions which act on the senses "as a seal on wax", then sensed forms are forms of sense, states of consciousness, "modifications of mind" occasioned by God knows what; but being good, His Nature guarantees our belief that there is something "out there", perhaps even that Descartes' particles are out there.

Our crucial difficulty in understanding Descartes, or his successors, is that all the things in the familiar world which seems to confront us everywhere we turn, are forms of "mind". That trees and houses and men should be "forms of extended substance" I can grasp, since all are extended, and we can quite easily treat "substance" as a primitive term in a science, largely geometrical, compatible with our distinctions of wood and sap and cells, bark and heart-wood, timber and metal and slate and stone, flesh and blood and bone. Our proviso earlier, "only colour and shape to be considered", works as the Dubito is alleged to work, by a "suspension of judgment"; and what it does is to substitute for empirical and even familiar complexity of differentiable constituting substance the blank uniformity of "extension".

It is this which makes initially plausible the insistence

on the phenomenological identity of dream and perception; dream things are "seen from the outside". True, we could dream the anatomy of a centaur, dissect a centaur in a dream - it is a "contingent fact" that nobody has; and we could quite well dream a set of springs and rods as the anatomy of a centaur, or little particles in motion. And we can prattle in this way for hours without concealing in the least that thinking is utterly unlike dreaming as it is unlike perceiving or sensing as "watching". "Mind" seems to collapse into different "minds" as the contents fall apart into completely different sections, as the generic "thinking" falls apart into species of thinking which are related only by a vague common sense of "awareness".

Dreaming is unlike thinking rather as what we mean by seeing something go on, merely watching it, is unlike thinking - unlike arguing and stating and supposing and considering and doubting "to oneself". After dreaming or seeing we can report that, consider that, argue that, believe that, state that, something was going on. We can imagine a blue box on a table, as we can dream it or see it, and say, or think, mistakenly, that we saw it or that we imagined or dreamed it. We can think wrongly, believe falsely, but dreaming is something that we cannot do wrongly or falsely - though I can think what was dreamed did occur. When I dream that you came to my flat last night, the dream is not true or false; my statement "I dreamed that you came etc." may be false, but only if I did not so dream; my statement "you came to my flat"

is false if I did only dream it, I dreamed that you came and in fact you did not come. And if I can never sense, and only dream, and "you came to my flat" is meaningful, then all "you came to my flat" can mean to me is the experience which is dreaming - though what the word "dreaming" would mean to some thing that cannot sense is difficult, if not impossible, to work out.

Yet if I saw you coming, what I saw was what was going on, namely you coming; and if I think "he came along the road past a motor cycle" what I think was, if true, just what went on. Thought without its object or content, thinking without its object, are nothing. If I can report truly now that I saw you coming to my flat, what I saw can be stated; but "seeing" with its object implies discrimination and distinction, noting and identifying. Force this line of argument further, and "seeing" is a kind or species of thinking. And so with dreaming, which Descartes, so far as I know, never includes in his "species" of thinking.

We cannot, if thinking and dreaming are distinct, and so distinct that one can be about the other, simply say that thoughts are in mind as dreams or imaginings are in mind. Only as "what goes on in us so that we are immediately aware of it" do the species of thinking appear as identical, and then only in a vague generic sense if veridical perception is denied, i.e. if what I see is never what goes on independently of me and especially of my body. "Seeing" as "in me" must be split away from "you coming down the street", and

then provided with a new "object".

The list of "what goes on in us" is provided by Descartes in the form of verbs, "to will", "to understand", "to imagine", "to perceive" - "which are here the same as to think" (Principles I.IX). These verbs we familiarly use with nouns and pronouns as subjects, and a diversity of objects, and in doing so we make clear what we mean by the verbs. When I dream that a centaur chases a goat, what I am aware of in the dream is what comes after "that" in the statement "I dreamed that..."; this is all I was conscious of; it went on beside a stream in moonlight and shadows; it was no more dubitable as it went on than is the moving of my pen on the paper before me and the marks which form behind the nib. There was no question of knowing that I was dreaming, or of being confronted by forms of a substance. When I dream I "know" what I dream; when I sense I "know" what I sense; when I imagine I "know" what I imagine; when I think I "know" what I think; and yet the obviousness of this collapses when we reflect that "knowing p" entails the truth of p, and the account of a dream is not a candidate for knowledge at all. The statement "I dreamed that..." is a candidate; it fits with other events, as well as other truths.

The certainty is not rational certainty - thinking, real thinking, metaphysical thinking or scientific thinking with a full guarantee, begins when I can say to myself "I think", say to myself "it was only a dream", "maybe trees

and pens and paper do not exist", "perhaps I am imagining and not remembering"; when I so think, there is no question for me of "thoughts" being things out there as in my dreaming and sensing I "think" there are things out there. When I so think I do not deny that the centaur chased the goat, or that the pen made marks on the paper; what I doubt and perhaps deny is the existence of the centaur or of the pen as spatially distant from me, the existence of things and the occurrence of events which I just seemed to witness as events in a space surrounding me.

The occurrence of "seeing" and "dreaming" is the condition of there being possible a critical doubt, a talking or thinking about the events and their objects; the doubting cannot be an asserting that the centaur did not chase the goat, the pen did not mark - it can only be that there was no centaur, no goat, no pen, which really existed, existed independently of me as other than an "object of thought", a "mode of awareness", a "thing in my mind". This is why the metaphysical doubt must be existential, must take the form of $(\exists x)$ or $\sim(\exists x)$, and why we should know beforehand all the words in a language capable of use in completing descriptions of the x. We must be able to make all the descriptive statements necessary to state that what is so does not exist, or can be conceived not to exist.

The statements that make up the account of the thing or event "witnessed" are not to be falsified; the account holds, but not of a substance as independent of me; it holds of

a thing named but not bodily-substantial - and this is our transition point to "Real Metaphysics" and our next chapter.

Let us note briefly, however, that in the Principle we began with, after all the talk of "qualities and affections", we conclude with "if I think that the earth exists because I touch it, neither I nor my body may exist, but I exist", i.e. with the ubiquitous Cogito. I exist - and Descartes proves to his satisfaction that I am a mind, a thing that can doubt the existence of all objects of sensing, dreaming and imagining; and of the thoughts which are correlative with these he can doubt the truth and the existence claim on the part of the subject. All objects are objects of thought in thought's denial of their existence.

Ego Cogito can be expanded into "I will, I understand, I dream, I doubt, I perceive..." because this is known all the time, and these statements were true all the time; all are statements of varieties of "thinking" by definition. It is the "I" who persists and proves itself to exist as the subject of the verbs, the agent or performer of the verb-denoted acts.

All such verbs have objects, all such acts have objects, and if we consider as we must the "objects", what in each case is "thought", what is dreamed or felt or imagined or thought...it is impossible to identify "I" with the objects, and no meaning can be given to the verbs without the objects so that "I" cannot be considered as identical

with the acts. It is equally impossible to identify "I" with "mind" if such objects (or the things which are named in the object-descriptions) occur in minds or exist only in minds as contents. "Mind" belongs somehow with the objects, on the opposite side of "am aware that" or "think" from my side. And qualities and affections of mind evade us still. If we juggle long enough with the "species" of thinking, treating each in turn as a generic and a specific, we get a range of "principles" presented by various philosophers, each as vacuous as the other, e.g. "To be a thinking thing is to think thoughts, and to be a thought is to be thought by a thinking thing - I am such a thinking thing", or "to be a perceiver is to perceive perceived things, and to be a perceived thing is to be perceived by a perceiver - I am such a perceiving thing".

These, too, are unhelpful in providing attributes.

Chapter X.

Substance and Form.

We extend our argument to a principle in which the sense of "substance" is akin to "stuff" or "material": Any thing is a form of substance.

This has many applications. It can be applied to the claimed identity of what is experienced in dream and perception.

It can be accepted that people dream, and that an account of what is dreamed may be identical with an account of what is at another time perceived. From this an important Cartesian argument is held to follow.

We arrive at no attributes of minds. The account of a dream will contain no attributes of "the dream". Nor will it contain any attributes of "images". Consideration of our use of "images" leads us to refuse to consider "things in dreams" as images.

3. (p.396). Talking, thinking, saying, reflecting, theorising and other activities are different from dreaming; but the word "dreaming" belongs to the same language as words for these. We omit a great complexity in simply saying "A is an account of a dream and may also be an account of a witnessable occurrence". We omit more if we leave out "A is an account", and by excluding all except "visual" features we arrive at the notion of a dream, which is "insubstantial", containing only forms, but forms identical with the forms of substantial things which are witnessable.

(p.399). And now we have to deny our principle (forms are of a substance), or deny the statement (A is an account of dream or occurrence) which makes the argument possible.

A causal relation of forms "in mind" and substance "out there" demands an account of "I" or "mind" such that it can be causally affected, and such an account cannot be given by a "mind". Perhaps the mind can argue in principles - effect, therefore a cause, the cause must be some thing, the thing must be a form of substance.

These modes of argument are employed by Descartes, Locke, Mill - but they are necessarily vacuous. We thus note a class of metaphysical arguments (p.403) which begin with a principle whose terms are correlative; if it is taken in isolation, the relation between the terms is mysterious, and if it is used to analyse an isolated empirical instance, a regress develops which can be stopped only by denying the principle and asserting an "ultimate" or "ultimates".

(p.404) We can in our previous instance preserve the principle and have two substances, or deny the principle and assert forms not of a substance, or deny the distinction between dreaming and witnessing of events. If we deny the distinction, we destroy all point in our argument - the principle applies to all things in accounts, and leads neither to minds nor to physics.

It is meaningful, however, to call dreams "insubstantial" and to ask, if the historical event and dream are both past, what is the difference to one who remembers. This leads to the question of the relation between substance and the world-as-historical.

(4)(5)(6). Prospero compares history to his pageant of spirits, and seems to declare history insubstantial. Types of metaphysical theory can be shown, by a developing argument, to depend upon an acceptance of history, and yet they seem to deny the reality of history and the historical. "Real reality" is sought.

(7) The attempt to deny reality to history illustrated, and (8) the consequent confusion related to Cartesian "substance". History holds our problems together and makes them intelligible. Metaphysicians reject components of our accounts of historical individuals.

(9) Category statements and necessary truths are related in detail to a type of historical statement - "Caesar swam the Tiber" considered as a true statement. The relation of statements like "Caesar was a form of..", "Caesar became a form of.." to "substance".

Samuel Alexander cited as one who moves from history towards a blank Space and a blank Time, and claims to be arguing in the reverse order, i.e. back to history.

(10) If we refuse these metaphysical paths, we recognise history and a host of sciences as mutually related. The same is true of History and technical terms in logic - the intermediary between history and logic is History (the subject, or science). History is related in detail to actual scientific procedures, claims and statements.

(11) (p.448) Aristotle was concerned in talking of Categories with what is here presented as "the metaphysical structure of things". Metaphysics is not a natural science.

(12). Metaphysical, logical and historical statements and their essential relations indicated. Metaphysical criticism of metaphysical theories said to be of the form "If History, then as well as your categories, these categories....", where "categories" indicates classes of statements.

"If then, we have to give a general formula applicable to all kinds of soul, we must describe it as the first grade of actuality of a natural organised body. That is why we can dismiss as wholly unnecessary the question whether the soul and the body are one: it is as meaningless as to ask whether the wax and the shape given to it by the stamp are one, or generally the matter of a thing and that of which it is the matter. Unity has many senses (as many as 'is' has), but the proper and fundamental sense of both is the relation of an actuality to that of which it is the actuality".

Aristotle. De Anima II.I. (Smith).

"From these facts one might think that the only cause is the so-called material cause; but as men thus advanced, the very facts opened the way for them and joined in forcing them to investigate the subject. However true it may be that all generation and destruction proceed from some one or (for that matter) from more elements, why does this happen and what is the cause? For at least the substratum itself does not make the change; e.g. neither the wood nor the bronze causes the change of either of them, nor does the wood manufacture a bed and the bronze a statue, but something else is the cause of the change. And to seek this is to seek the second cause, as we should say - that from which comes the beginning of movement. Now those who at the very beginning set themselves to this kind of inquiry, and said the substratum was one, were not at all dissatisfied with themselves; but some at least of those who maintained it to be one - as though defeated by this search for the second cause - say the one and nature as a whole is unchangeable not only in respect of generation and destruction (for this is a primitive belief, and all agreed in it), but also of all other change; and this view is peculiar to them. Of those who said the universe was one, then, none succeeded in discovering a cause of this sort, except perhaps Parmenides, and he only inasmuch as he supposes that there is not only one but also in some sense two causes. But for those who make more elements it is more possible to state the second cause, e.g. for those who make hot and cold or fire and earth, the elements; for they treat fire as having a nature which fits it to move things, and water and earth and such things they treat in the contrary way.

When these men and the principles of this kind had had their day, and the latter were found inadequate to generate the nature of things, men were again forced by the truth itself, as we said, to inquire into the next kind of cause.....

Aristotle. Metaphysics. I.3. (W.D.Ross).

"Nothing that is has a nature,
But only mixing and parting of the mixed,
And nature is but a name given them by men".

Empedocles. Quoted in Metaphysics V.4.

"Is second childishness and mere oblivion".

Chapter X.

Substance and Form.

Substance and Form.

The distinction of substance and form is valid, useful and historically important. It is so wide in its application that it can, if with considerable variations in sense, be used to contrast sentences with sentences, propositions with propositions, men with statues, and statues with lumps of metal. Sometimes we want to stress identity of form and difference of substance (or matter, or content); sometimes we want to stress difference of form, and identity of substance (or matter, or content). And "form" has been used so widely that species of a genus have been said to differ only in form, just as "essence" has been called "substance"; and at least from Bacon onwards "form" was used in a sense that was equivalent to "attribute".

My discussion here will be inadequate, but it is closely related to what has gone before. If we accept as a formulation "all forms are of a substance", or "a substance occurs only in forms", treating the terms as variables, we have a parallel to the subject-predicate, or the substance-attribute, principles as I insisted on treating them above. That the principle functions at the level of fact statements and in science is clear enough, and can be elaborated in the next chapter. I want first to consider here the consequences of applying the principle to an accepted fact, claiming that the consequences (a) exemplify bad metaphysics, (b) present either contradictions or vacuity, and (c) fail to assist us

in our search for understanding of "theories" of mind. If, however, we can establish common features to metaphysical arguments, and especially arguments to necessary substances, we are assisted in our search for an understanding of metaphysics, science and a factual or historical world.

(1) People dream, and report their dreams. I, as a dreamer, understand their reports correctly when they say "I dreamed that....."; I know that "I dreamed a centaur chased a goat around my room" is compatible with no centaur or goat being in my room, compatible with you, watching me, seeing nothing but a face and bed-clothes. In dreaming, I was not aware of being a man, being in bed, or being asleep. And sometimes, when I dream, what I dream and am aware of in the sense that dreaming entails awareness is to me exactly like a set of witnessable and public events.

(2) Whether we say that people report or describe or relate or give an account of their dreams matters little for general purposes. It is a fact that quite often an account "A" may be an account of a dream as what was dreamed or an account of what was witnessed as a waking spectator. So we can state Descartes' argument with regard to dreaming and perceiving, and it seems clear enough that if I were a mind, a mere dreamer, mere perceiver, any account "A" would be of what I was aware of, and nothing more to me. (If I have a use for "dream" and "perceive", I am not such a mind - but this is harmful to the argument, like so much else).

Many have, indeed, argued both reflections and things reflected

My insistence on "account" is not for general purposes, but for a particular purpose. When I describe a centaur or a goat, I make statements about their forms, shapes, colours and tones; loosely, we may add actions, behaviour, what happened to them. In this sense we do not describe the dream at all. No qualities in the description, no shapes, no colours, no actions, are predicates of "the dream". Nor are they predicates of the dreamer.

If we call the centaur and the goat images, (a) we are getting beyond the dream account or the dream experience, (b) the qualities etc. are still of centaur and goat, (c) we have no qualities for images, (d) have no qualities for minds, and (e) if by "images" we mean something over and above the dream- experience, things somehow looked at, then the dreamer can know nothing of these. No one else, obviously, can be "aware" of them. By proportionate reduction (6 ft centaur and 2 ft dog to centaur three times as high as a dog) we can get images into the brain by simple calculation, but nothing will get images of any size into the "mind". And when we get them into the brain it is nonsense to call them images, unless we mean by "images" likeness-of as paintings or drawings or statues are likenesses-of.

Of such likenesses no one has managed to give an intelligible account. No one has, so to speak, managed to get beyond the reflections I see in another's pupil or lens, managed to get the reflections into the optic nerve and to the cortex. Many have, indeed, argued both reflections and things reflected

out of the "world" entirely and into minds, consciousness or "senses".

I do not wish to labour the point at issue. Things in dreaming, centaurs or goats, are qualified and formed, act and are related; the account can be given, using nouns like centaur and goat and containing descriptions of centaurs and goats. If we call the centaur and the goat "images", as we can call all things in dreams "images", then we can add "and the centaur is an image", "and the goat is an image", to any statement about the centaur or the goat. We achieve in this way another way of saying "no centaur, no goat, in the room and witnessed". Most of us are familiar with St. Paul's, with photographs and paintings of St. Paul's, with the numerosity of prints from one negative, reproductions from one painting, the remoteness of prints and paintings from the one and only and permanently located St. Paul's. We can look at a painting of St. Paul's and at St. Paul's, comparing the two. We can say that the building in the painting is coloured, or that the paper or canvas is coloured. The painting is a good or bad likeness, perhaps the very image of St. Paul's - but note how odd, how strange, it feels if we say that all paintings and photographs are "images of St. Paul's", even if we see that they are all "like St. Paul's".

This is part, if only part, of our difficulty in turning "I see St. Paul's", "I am imaging St. Paul's", "I can see St. Paul's in my mind's eye, Horatio", into statements about

images, or, accepting "I see St. Paul's", turning the later statements into statements about images. It is true that the conversion distinguishes the later situations from the situation of "seeing", but that seems to be all that it does. There is no photograph or painting, and if there were we should have the same problem as before - I can imagine a photograph or a picture. True, this holds only of material photographs or pictures, where "imagining x" is somehow equivalent to, or is held to entail, "forming an image of x", and a fortiori "forming an image", and "more fortiori", "being aware of an image".

I describe what I am aware of as, say, a building of complex colour and shape and surroundings, and label it "St. Pancras station". Struck by "The massive dome, the glorious symmetry", in my account, my listener points out that this may fit St. Paul's, and not St. Pancras; equally, I may find that the imagined building is not an existing building, a building that has ever existed. What I have described, then, is an imaginary building, and if we call the imaginary building an image, I have described an image. It is not a likeness or a photograph or a picture; nor is it anything I look at, though I can give a meaning to clear and distinct, blurred and confused, in relation to what I imagined as I can to seen pictures and photographs.

It is only if I want to talk of what is imagined as a picture or photograph, and of some thing whether that thing exists or does not exist independently of the imagining,

that I have to find a substitute for negatives, paper and canvas, and traditionally this is supplied by consciousness, senses, sensoria, or imagination - images are "painted on" these, as well as being located in these, they are forms imposed upon these or fabricated within these. Any one of them can be spoken of univocally as "that which (and only that which) sustains images". Extended to all the senses, most of this talk becomes a vague blur because "image" loses almost the whole of its meaning; while the stress is on vision and imagined things shaped and coloured, the terms "consciousness", "sense" and "imagination" are necessary terms in necessary truths, designating necessary entities, and the meaning of the necessary truths is to be found in such as our initial statements, "I dreamed that the centaur I described chased the goat I described" and "there was no centaur and no goat in the room".

The things imagined or dreamed have qualities; calling them "images" asserts that they are not world-things; only as images are they forms of consciousness, sense or imagination - no one wants centaurs to chase goats round and round a mind; as images they are necessarily forms of consciousness etc., just as consciousness is necessarily that of which they are forms; and none of the qualities of centaurs or goats or any thing else imagined or dreamed will be qualities of images or of minds.

When we recognise that what I dream or imagine may have a complex, as-if-historical account, the whole of which has

to be brought under the head of "dream", "imagination" and "image" - we cannot treat things in dreams as images which really chase one another around imaginary rooms - the necessary argument which has elements of convincingness at the level of "thing", "no thing", "imagine", form in or of "mind", seems scarcely to have bearing at all. It is submerged in a flood of facts and further necessary truths.

3 (3) Talking, thinking, arguing, reflecting, theorising, like riding, chasing, eating and bumping, are different from dreaming, about which we can talk or think or argue or reflect or theorise. It is probably true that we can dream that we are doing all these, and that we can, while asleep, talk, think, reflect, theorise, even about dreaming. If, while asleep, I think "Dreaming is the immediate intuition by a mind of itself as sensuous other, of its essence as desire as what is desired", this will seem meaningful, may be meaningful; the activity may be called "dreaming", but it is difficult to see that it has anything to do with images, that an account of the "dreaming" can be presented in statements about images. If we restrict dreaming to "scenes" or "occurrences" which have an account generally the same sort of account as that of witnessed scenes and occurrences, the account is not itself a dream or dreamed - whether thought or thought and spoken or written, it demands a thought or thinking which is not dreaming, and thinking may, as in the case above, be of dreaming in general, and not of a particular dream at all.

Further, when we talk of "witnessing", what we have in mind is being confronted with things in complex action, things and actions which we recognise. It seems patently clear that children are incapable of the same sorts of recognition and witnessing as adults; and the more we reduce "sensing" to sensations of colour and shape, or to causal relations which hold between any sentient and what effects it, witnessing becomes more and more a matter of something over and above sensations or the sensing of them. We have a special sense of "images" to use when presented on a screen with "things" which we cannot recognise, but familiar things we seem simply to recognise.

Recognising is one of the things we learn to do, and do or fail to do, do correctly or incorrectly. It is one of the many activities which I regard as mine, an activity which is extremely difficult to reduce to a "thing" in me, and seemingly it is a part or element or "moment" in dreaming as it is in witnessing. It seems impossible to reduce recognition to images - and when we talk of "ideas" one class at least seems to reduce to "recognitions" or "powers to recognise", rather than vice versa. And "witnessing", as "just seeing", reduces to "looking at", "being confronted with", only if we pack a great deal into "looking at", or "being confronted with".

What I want to stress is the complexity which is left out when we say, simply, that A is an account of a dream and may also be an account of a witnessed occurrence. A dreamed

picnic may be just like a real picnic in account. Recalling the dreamed picnic and the real picnic, or recalling the dream while picnicking, I may not be able to discover any difference. The experience, we may say, is the same in either case. But when we come to consider questions of similarity, or to give accounts and talk of identity of accounts, we are doing something which is very different from the experiencing of either "picnic". This something different, like all the other different, like presenting a dream and a real occurrence, or a hypothetical dream and occurrence, in order to make a point in argument or illustrate the application of a principle we are trying to understand, we ignore when we consider only "A may be an account of dream or real occurrence", "dreaming is just like perceiving".

Ignoring them, we can say all witnessable occurrences are identically occurrences, differing only in form. Dream occurrences are in form the same as witnessed occurrences.

This is still too crude, too revealing. But if we confine our attention to the visible features of the world, to the "visible world", then it appears, considered as coloured extensions in a process of change, as a piece of dynamic sculpture; it is coloured by a special process, but if a different process produced different colours, the sculptorial features would remain the same - colour is of secondary importance. All things are identical in being extended in the visible world. But the dream world is like this, too. A dream, like a real situation (which may be dreamed) is a

piece of dynamic sculpture, appearing as and described as the real situation appears and is described. Forms and descriptions are identical. And the dream, by contrast with the real situation, if we work within a framework of understanding of "x dreamed" and "x witnessed", is "insubstantial". We have two objects on which our attention as thinkers and the subject's attention as dreamer-witnesser are focussed, two objects which are identical in account, in form.

If perceiving is just like dreaming, if we cannot tell the difference, if we are minds or souls or consciousness.... there are only for us forms which are insubstantial. Paths we have already traversed open up before us. Before following a new one, however, let us note what we have done.

We began with a principle which insisted that all things could be regarded as forms of a substance, and form and substance are correlative and correlative with thing. Now we seem to have separated forms so completely from substance that they are independently existing things which (a) can be related to their substance in the case of "real things" only by an elaborate theory which justifies our belief that there are things like horses and dogs and real picnics, while (b) we have no substance for centaurs and dream-picnics, and (c) we seem doomed to duplicating real forms as both forms of things and forms in minds. If our explanation which relates forms and substance "out there" is causal, then our use of "I" or "we" is neither editorial nor vacuous, since we cannot be mere

"conscious things", mere "perceivers of forms" - this holds true even if we deny perceived-forms to things and allow them only conceived or imagined forms, or talk of them as things with unknown forms; we must have something to affect the mind or our mind, and correspondingly minds must be things able to be affected. Yet the mind, soul or consciousness, supposing the causal theory to include it intelligibly in an account, cannot have a theory at all, and has not the slightest need for one. (Wild and non-wild data do not correspond to untamed centaurs and tamed horses, and to the mind the data would be without any sense, i.e. not sense-data, but just data).

We, who can have a theory, have asserted a principle, located a suitable fact ("the account A may be of etc."), applied the principle, and as a result we have either denied the principle or declared to be meaningless the statement which made the application possible - and hence we declare the application to be impossible. We have converted into a problem, and even into an impossibility, the relation of form and substance with which we began.

This, I suggest, is the almost automatic result of asserting a principle in which the terms are correlative - and this is what provides the "rational and necessary truth" of the principle - and treating the terms of the principle as indicating things which are independent of one another and have to be related, or whose relation has to be discovered. In this case, substance cannot be related as bearer of forms to

the forms, and the parallel is close to the thesis of Descartes and Locke (and Mill) that an observation statement (x is y) really means "something material (x ? No, if " x " is a noun in use) is acting on the body of A and on the mind of A so that the state y is caused in (or of) the mind of A ". It is true that sometimes they speak as if what was in mind was "that x is y ", so that we have predication simply; but the "sensation" is " x out there is y ", and with the denial of "out there" neither theorist could give an account of the x - as "in here" ~~it~~ is inexplicable, as "out there" it is indescribable.

Substance-thing, as out there, can be guaranteed by guess and by God, or by proving the qualities to be effects and applying the causal principle (I did not cause them, something else did); the qualities, except those indispensable if we are to say anything at all intelligible of substances "out there", are spatially remote from the substance-thing. On the strict argument (vide Berkeley) the substance-thing can have no qualities and no form at all; and this seems meaningless, until we recognise that the causal argument demands a thing out there, not a stuff or supporter of attributes. Once we have established the thing, we can apply principles and argue that the thing is substance with attributes or forms, must be such, although we, "locked in our subjectivity", can never know, never give a value to, thing or substance or attribute or form. Thus we relate the disjointed correlatives of one principle by asserting another principle (the causal), and then applying our initial principle to the (inferred) term we

arrived at by applying the causal principle. What is "out there" for anyone who is actually perceiving, what is before his eyes and persists when he turns his eyes away, is a thing which must be a form of substance. He does not perceive it, does not perceive thing or substance or form, since it is not the sort of thing that can be perceived (or "perceiving" is not the sort of "thing" we can do of things "out there"). The thing causes his perceptions, i.e. the yellow oranges and glowing red tomatoes, the cat chasing dogs he "thought he perceived". There must be a thing acted on, and if we call this "necessary thing" a mind which can assume or be caused to assume different forms, the perceptions, yellow oranges and cats chasing dogs, are forms of the substance which, in a form, is a thing which can be acted upon once again. Dreams and perceptions are both forms of such a substance; the difference is that perceptions are caused by external and unknown substance-in-form things.

This is a long way from establishing that cats and dogs and oranges are either forms of the "inner substance" or forms of the outer substance which, in a manner as unknown as the substance-in-form or thing "out there", causes the inner substance to assume another form. The modicum of fact and the vast deal of necessity, indeed, seem to establish little that is intelligible. But what I am interested in is the pattern of argument which sunders the terms of a principle and "relates them again" by asserting another principle, a

We need a statement of "what is" to apply the principle

principle which under ordinary circumstances we would say was relevant because we could indicate the values of the terms, i.e. when we could say "such a thing acted in such a way on such a thing that such consequences followed".

Substance-form, substance-attribute, subject-predicate, relation-relation, even cause-effect, are all principles which, when the correlatives are sundered as distinct substances or independent things, defy relation and produce a series of traditional metaphysical arguments. Each, if applied to a single fact statement of an appropriate form, presents a logical distinction within what is intelligible - if we understand the statement, we can grasp the logical distinction. Considered without reference to instances, or considered in relation to an application to an instance which produces "x is a substance and y is a form", any one can lead to the question "how is substance (or subject, etc.) related to form (or attribute, etc.)", a question which is, I contend, unless a request for information about the use of elementary logical terms, completely meaningless. Each, moreover, can be developed from an instance into an infinite regress which can be terminated only by contradicting the principle, and the result is ultimate substance, form, agent, act, or relation according to our particular preference for one or other principle as "fundamental". Each, finally, can be applied to a statement about "the world" to produce ultimate substance etc. directly.

We need a statement of "what is" to apply the principle

and "arrive at" what must be, what necessarily is, what is Real in contrast with what is merely real. The subject of our "what is" statement must be known, and the statement we need is "the known (sensible, perceived, familiar) world is a form (attribute, effect etc.)"; and if this is not a "known truth", it requires proof, proof by means of a truth and a principle, or a truth which, like the Cogito, is known truth and principle and proven by principles from the fact that dreaming is just like perceiving.

Having, as we did above, isolated the statement "the account A may be of dream or external event" from any context of statements about dreamers and perceivers and givers of accounts of what they dream or perceive, and declared A to be an account of forms, we arrive at two different substances, neither ultimate, if we do not deny the principle; or we arrive at forms separate from substance if we deny the principle; or we deny our distinction between dreams and witnessed events, and have only accounts which we declare to be of forms, and we are bound by the principle to claim a substance with the forms. Yet if we deny the distinction, there is no point in starting the argument or applying the principle. At best the principle will apply to all things in the accounts, all things would be forms of the same substance, and "forms separate from substance" is a logical impossibility.

We get neither to minds nor to physics. But it is still true that it is meaningful to call dreams "insubstantial";

it is true that an account A may be of dream occurrence or of historical occurrence; while if dream-occurrence and historical event are past, what is the difference for me?

As a man, the answer I give will be intelligible and complicated; as a mere rememberer, I find it difficult to give an answer; but the question which arises even from the man's question is as to the relation between "substance" and a world-as-historical, a world in which the things come into being and cease to be.

4. "The cloud-capp'd towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve
And, like this insubstantial pageant faded,
Leave not a rack behind. We are such stuff
As dreams are made of, and our little life
Is rounded with a sleep".

Neither Prospero nor his creator are authorities on the metaphysics of mind or of substance, but the author of the Shakespearean plays has, like Webster, an occasional habit of putting into striking form a traditional metaphysical principle and the consequences of its application.

Prospero's pageant, it will be recalled, was possible because he controlled a number of spirits who, or which, obedient to his magic-backed command, assumed the forms of both human beings and gods of the Greek variety. Presumably each of the spiritual rabble (Prospero's phrase) had a form, natural or induced, before the pageant, but each was transformed. He did not cease to exist, and thus Prospero is not producing something from nothing, though his human audience

may have thought so. The spirits remained identical in substance throughout the transformations.

Had one been turned into a stone, he presumably would have lost identity and substance - but this is the realm of magic and miracle, if also the realm in which philosophers may seem to claim that it is logically possible for the world to have begun two minutes ago, or a ghost to become a mountain. We will not get details of information here, though we can see how substance, form, individual persistent, and persistence as kind of thing or thing of a kind, are inter-related. The conjurer substitutes a stone for a man, and this is locomotion, change not of form or of substance but of place. The magician transforms, and what persists is either (a) the individual identity of the spirit, who bears the same name throughout, or (b) the same spiritual stuff, or (c) the same kind of thing, namely that which is called "spirit" or "spiritual". The different possibilities are not independent of one another, though in general we do tend to demand of a process of transformation that one of the "things" should remain constant, and treat it as the reason or ground or possibility of the transformation of the others. Consideration of this enables us to see why substance, as unchanging support or substratum or explanation of change has been treated as individual, as stuff, and as genus, definition or essence (just as it helps to see why philosophers have, when in search of individual identity, been concerned with darned stockings and re-built churches and serial thoughts,

It only is identity

and found common to all "identity" nothing but the bearing of a name).

Had Prospero used mass hypnotism, instead of spiritual engineering, his procedure would, in relation to his audience, been different; each would have given the same account of the pageant. If such an hypnotic state is like dreaming, each would have remained a constant agent, and dreamed what the others dreamed. The dream, as changing forms, would have in each individual case demanded no spiritual substance "out there", and the dreams would have been different occurrences in different places, though in another sense they would have been identical. Such a possibility we may note and remember, since it is different from a case of spectators of the same occurrence.

Our dreams, like our eating and our reading and reflecting we can date. Done, they cannot be undone; but they cease "to be" when done. We persist, and dream and eat and reflect again; and we, it seems, have substantiality. We are forms of a substance. But Prospero speaks of the whole pageant as insubstantial, and then of the whole world as later to "dissolve", while we, parts of the world, are like the whole of which we are parts, of the stuff that dreams are made of. The world, we in the world, are not, on this view, our dreams. All things in the world, like ourselves, are fated to cease to be.

This can be stated without reference to substance at all.

Nor need we refer to dreams and pageants. The full metaphysical argument about "substance", however, proves from the fact of persistent change of things that it is necessarily true that a substance-stuff lasts eternally. Descartes also proves that he, as individual substance-essence, self-experiencing in essence, also lasts forever. From forms or acts, from relations or common features of individuals as attributes, the argument is also via a necessary truth to a substance, stuff or agent which necessarily exists and, different necessarily from the forms or acts or relations or attributes, the substance cannot conceivably suffer the vicissitudes of forms, acts, relations or attributes.

Variation of the truths or of their application enables us to accept the changing of historical things and to prove that the attributes are unchanging and eternal, though perambulatory; from the necessity of the changing world, or of discontinuous time, being sustained, we can arrive at an eternal relation of sustaining or support, and an eternal act of support and agent of supporting acts; and denial of the necessary eternality of the act or relation of sustaining does not deny the eternality of the agent-substance, who can merely cease to act and sustain - He can cease to "think" or to "dream" the world. There seems clearly enough to be a common pattern to the arguments, and which principle we apply to an asserted fact or facts seems to depend upon what sort of eternal substance we have decided beforehand we are going to prove necessary.

(5). If Y is a form, then there must be a substance X of which it is the form. Any thing is a form of a substance. $T = f(YX)$. Differences between substantialists, i.e. between those who accept $T = f(YX)$, accept the category of substance-form as the vital category for metaphysics and philosophy and fundamental science, have always been differences as to what different substances there were, or what the necessary substance was. With certain exceptions it has been generally maintained that (a) we are always encountering forms of substance, and (b) that we never encounter substance directly. The exceptions we must note: if, like Thales, we insist on water we are insisting that we encounter substance in its actual purity, and we have a valuable empirical thesis. Our claim is that all things can be transformed into water, and it is valuable because we learn a lot about things in trying to transform things historically into water or water into them (cf. the work of the Alchemists). The scientist refutes us, however, by showing water to be complex, by providing a substance or substances which explain the changing of water; the metaphysician proves us necessarily wrong by showing that we have no reason for saying that water is not a form of vapour, or that water and vapour are not equally forms of earth, or of the substance of which they are all forms. If we try to write "substances" for "substance" in (a) and (b) above, we necessarily encounter the same difficulty as with Descartes' attempt to provide two subject-substances

and distinguish between them; the differences cannot be "substantive", and if they are formal we have no two substances, while if there is one substance it cannot, qua substance, be said to have a form. What was argued above of x and ϕ and ψ , of ϕx and ψx , remains true if we call ϕ and ψ forms instead of attributes.

In general matters, we maintain a plurality of substances and forms by distinguishing qualities and forms, by recognising substance-stuffs of different kinds, whatever forms they occur in. Without the distinction, we seem bound to assert that only forms are directly known or known at all. When we recollect that the unfortunate "naive realist" is bound by certain philosophers with sense-datum axes to grind to a thesis that visual data are at best parts of the surfaces of "material bodies", and that most visual terms, like tactual terms, are closely concerned with forms qua shapes, our present consideration of past problems does not seem remote from post-Cartesian questions.

Nevertheless, it is not obvious that Prospero's question, substantialist' questions, are necessarily bound up with questions of sensation and perception.

6. Keeping Prospero's fine phrases in mind, and ignoring the things we meet and discuss and investigate while considering en Bloc, all things that are and have been, we can note metaphysical implications of a "one substance" thesis. Those who speak lyrically of a material stuff-substance which is identical and unchanging throughout the universe can talk of

change, since they can say "x at t^1 was y" and "x at t^2 was z", where x is the material substance and y and z are accounts of the forms of the substance and so accounts of the world at times t^1 and t^2 . Presumably the accounts will be what we would call "phases of history", and would take the form of the complex fact-statements which we regard as History. All history is, then, a matter of changing forms, of forms which come into being and cease to be and can be contrasted with and related to one another, while the matter-substance, by definition and indescribability, stays one and eternally the same.

Such materialists do not deny that men dream, or that dreams may be just like material reality in the sense that a dreamed picnic on the sands seems to me, the dreamer, just like the picnic we had on the sands at a material time and place. Dreams can be treated, as I have treated them, by insisting on the verb "to dream" and "man" as the subject; the penalty, however, is that "x is matter-in-form" is compatible with "x does y" for all values of "x" and "does y" that can appear in fact statements, and values of "does y", and any quality term which distinguishes a form from another form, indicate not forms of matter but qualities and acts of formed-matters - qua things. When we add further that our account of man in terms of structures of organs, nerves, muscles, bones, tissues, cells, blood and circulation...no matter how far we carry the investigation, will always halt at forms or structures of forms of matter, while the structures

are essential to a statement of the relation between a form of matter and component forms of matter, we may well wonder whether "substance", as "matter", has any meaning at all.

For several reasons the materialist is happier talking about history or "the world" than about events and commonplace things, and when he begins to specify his matter as atoms or extension or a physical stuff he has considerable difficulty with dreaming or thinking. He cannot, with any facility, simply declare dreams and thoughts to be "forms" and just "immaterial" and, once the "matter" is specified, the question "How can a specific form of the specific matter think or dream?" becomes a justifiable critical attack. Descartes, it will be recalled, argues from the impossibility of forms of extension thinking to the necessity of things not forms of extension.

Those who maintain a two-substance thesis can avoid the logical difficulty of substance-less forms by declaring dreams to be forms of a real immaterial substance - "immaterial" ceasing to be a "negative or privative" term and becoming positive. "not- ψ " becomes " ϕ ", and " ϕx " is "mind".

Accepting the counter-thesis, we can contrast the dreamed picnic with the real picnic as different substances with identical forms, whether or not we realise that we are close to echoing an ancient theory of Perception: knowledge is the mind's being in the same form as that of the object, perception the passage of form without matter-substance into mind, the reflect-

ion or mirroring of what is before our organs. But if we cannot characterise the substances in any way, cannot "encounter" them in their nudity or "conceive" them in their nudity, we can distinguish them only by reference to the difference between dream-occurrences and real-occurrences. This difference once recognised, we can claim that the substance difference explains it and must be so; but the distinction between dream and real which is to be explained is all that gives meaning to the explanation, to the argument to the necessarily so or the statement of the necessary conclusion. The substance-difference, moreover, seems to be predicative. It corresponds to "real" and "unreal", "actual" and "fantastic", "occurrent" and "non-occurrent". (If we believe, with Broad, that Reality can be divided into existents and non-existents, the correspondence would be with "existent and Real" and "non-existent and Real").

If we can say "x is material", or "x is extended", we can say "x is a form of matter", "x is a form of material substance". If we can say "Y is a dream", we can say "Y is a form of dream-substance", "Y is a form of mind". In this sense extended or material substance and mind-substance are utterly distinct "existences". And if we close our eyes to difficulties we can treat dream-substance-forms as perceived in the same way as are extended-substance-forms.

(Quite apart from our need to make statements about "minds" which are entirely foreign to dream-stuff-form notions, unless we insist on the purely visual or spatial

relations between things perceived, relations between things are not material as the things are material, and actions are even more troublesome. If we talk of the things in the dream, we have to talk of unextended centaurs being non-spatially chased by unextended dogs, which is very different from saying that dreams are unextended, demand no space. Unextended things, centaurs or geometrical points, are inconceivably coloured or perceivable - and if we want to revert to "seem to be", we have to restore an "I", a thing to which they seem, give an account of it, and then sort out "Centaur is a form of a substance and seem to be coloured and extended" from "Centaur is coloured and extended form of a substance and only seem to be" - even, it seems, when "perceived").

(7) If we consider the vast series of statements which we call History, the materialist fastens onto the nouns rather than the verbs and adjectives, prepositions and conjunctions and adverbs. The strength of his position lies in the fact that without nouns no statements are meaningful in History, and in the case of any thing the form-substance distinction can be made. Much of our science proceeds in accordance with this "principle". Having established that a and b and c are of the same stuff d, we seem to have grasped what a and b and c really are. Chemists, especially, are convincing here when they change d from a-form to b-form to c-form, change some thing from solid to liquid to gas; we seem really to have understood what is involved in change when we realise that

it was just d all the time. Descartes, in a more complicated fashion, did this with his piece of wax.

So with knowledge of the stuff we get nearer to a grasp of Reality, of what is really so. But we would reach "real Reality" when we managed to indicate the substance-stuff common to all things - we have then established what Really Is and Never Changes, in contrast with the merely changing or mere changes. Change is to be explained by the Changeless; history is not explained by the historical, and history is a matter of forms or appearances or "phenomena", not really scientific and certainly not philosophical. There is something wrong, something irrational, about time which involves processes and change, as distinct from Time, which involves neither.

The "argument" flows, and metaphysics is signalled by a rash of capitals. The category of change - process, alteration, becoming, development, all statements involving these - is denied; but only at the level of Reality.

Time and change and process are vital to the argument to Substance, partly because they are held to necessitate the Substance-thesis on logical grounds, partly because without change we simply have classifiable things with different qualities. The physicist's "indestructability of matter" is argued to from change. And it is both change and the element of mere-time which appeals to Prospero who is, like his creator and Webster, much possessed by death. In

a metaphysical mode of speech, what concerns him is that if at any present time the substance of the past is present, then the forms of the past are at that time merely forms; and history, behind a fleeting present, is like a dream. Like the centaur and the goat of last night, Prospero concludes, we are the stuff that dreams are made of. Prospero seems to have substituted a mind-stuff which is immaterial for the matter-substance whose forms are history.

If we forget all about dreams, and think only of the historical world, we can find this metaphysically interesting, even exciting. If the past is immaterial and unreal, or real and non-existent ("existing only in memory", "existing only in or for minds"), and the future is immaterial and unreal and does not exist even in anticipation (except in the gross guise of the Future, which is blankly non-specific and not "logically necessary"), all that can be material is the immediate present; and if that is instantaneous and timeless it is nothing. (If the specious present has duration, it "is" very little, and specious anyway). Thus, if the material substance is eternal, it must be co-extensive with Space in its three dimensions and co-extensive with Time in its one dimension, so that "material-substance" is identical with "Space-Time".

From Prospero's point of view, we begin with a consideration of events in time, i.e. of history, and we reach a conclusion that what is historical is immaterial, insubstant-

ial; from another (and Cartesian) point of view, we reach a conclusion that whatever is historical is a form of material substance, a form of that which can only be said to be extended and to persist-- we can leave for a moment the objection that strictly it cannot be said to be or do anything at all. Neither, presumably, wants or intends to deny that a gorgeous palace built of stone in 692 and razed in 1248 ever existed, or that it does not exist now. Neither seems particularly concerned with the possibility of tracing out the history of "the palace" after 1248 - the vicissitudes of the stones and fragments of stone, of transportation and alteration and weathering and decomposition. The point is that neither feels any compulsion to do history as an accompaniment to explaining it.

The palace, for Prospero, is gone, and he, you and I will some day also be gone. We are insubstantial, impermanent, forms of a dream-stuff. Prospero does not elaborate; but if the dreamer is God, and whether or not the dream-stuff continues eternally as God dreams on forever, we are no longer dreamed and no longer exist. If there is just "dream" and no dreamer, the dream-stuff continues forever, capable only of assuming new forms.

If Matter or Extended Substance (Descartes' "Body") is identical with Space-Time, we can no more say that it exists than we can say Space-Time exists. We cannot say that it is anywhere, anywhen, or not anywhere anywhen - our guide

is the natural light, and at this point it simply goes out. It makes no more sense to say that Space-Time exists than that it came into being or could cease to be. If we call Space-Time "Real" or "Eternally Real", then only Space-Time is Real; even if we call "things" forms of Space-Time, all things which we say exist or did exist are Unreal.

It seems to be true that having said this, we have said all that we can say; and that we have, if we have anything, further information about things whose general accounts still hold, together with odd statements about Space-Time. Descartes' insistence on particles and instants is related to this, but very different. Particles are forms of extended substance, forms of body which is identical with space because "unfilled space" is a contradiction. Particles persist forever, and in contact they constitute the res extensa, while in contours they constitute gross bodies. Yet for a particle to exist forever entails that it has been created and is sustained instant by successive instant by God, and sustaining is both annihilating and re-creating. God is Substance in a special sense, since He is Eternal and Unchanging and needs no support; particles are both permanent and impermanent, divinely sustained by annihilation and creation; individual thinking substances are likewise permanent and impermanent, divinely sustained in the way God has to sustain to satisfy Descartes' atomic space-time theory.

What Descartes thinks is possible is to assert these propositions in one context and then to forget them. Having

forgotten them, the mind-things can be treated simply as
 persisting things, the particles can be treated just as
 persisting things. "Thinking" and "extension" become essences
 and characteristics. But if gross bodily things are forms
 of the res extensa or of particles, they are Unreal because
 they are transient and change; or they are Unreal because
 formed and changing, particles by contrast being Real because
 they do not change in form; or the gross bodies are Unreal
 because formed and changing and Real because they are of body
 and so substantial, so that the things of history are both
 Real and Unreal at the same time. If bodily things familiarly
 noted in History are Really only configurations of many partic-
 les, especially if the particles move in and through them,
 History is Really a record of changing configurations, and what
we call History does not apply to the physical or extended
 world at all.

What we call History is just like a dream, a series of
 dream-stuff-forms, Unreal as changing and forms, Real as
 dream-stuff-substance, both Real and Unreal, but differently
 Unreal from the way in particles are Real and differently
 Unreal from the way in which changing configurations are
 Unreal. The more that we insist on qualities of such forms
 of stuff and activities of such forms of stuff that cannot
 be qualities or activities of particles or configurations of
 particles, the more history becomes for me my dream, or my
 perception which is dreaming - and the difficulties are
 clear if we want to contrast my "real" dreams with my

perceptions which are dreams. You and Tom and Bill and I have the same perception-dream, let us say; otherwise there is no history. These dreams, we may say, are caused by configurations of particles, real and unknowable forms of Space-Time, acting on minds. These causings are part of Real History; but what we call History is what exists only for minds, in minds, as dream-forms and memory of dream forms. No one has, I think, attempted to decompose the dream-form things into eternal elements as Descartes does both the *res extensa* and thought - the latter as changing patterns of ideas in combination.

8. The complications are far from completely unfolded, and there are more Histories, more Relations, more Realities or Degrees of Reality to be elaborated. Even in terms of "substance", God as substance is unique, unclassifiable, eternal, individual, and persists as unchanging in action. The Particles are eternal, individual, plural, classifiable, qualified, move, and are forms of the Res Extensa. The Res Extensa is a substance, is one, contrasts with Mind, is unchanging in persisting, yet occurring always in forms which are particles or (differently) things called bodies. Minds qua individuals are contrasted with particles, independent of each other and of particles, and apparently unchanging in acting. Thinking-substances occur at different places, in different forms and modes of individual occurrences of thinking substance. The thinking substance is also a modal succession of combinations of ideas. Minds and aggregates of particles

are causally related in a system of mutual affecting and being affected that explains history and/or is the real History which underlies our history. Real History is Real Thought; unreal history is the effect of particles on a gross body with a mind, and the mind acts on such a body, moving that body in the Real World. And Mind, now, is to be known as either will or Will, which seems flagrantly different in all respects from Thinking or thinking or dreaming or dreaming-perceiving.

All these positions are Cartesian, and they represent different metaphysics of substance. They bear unmistakeable resemblances to pre-Aristotelian metaphysics which Aristotle rejected. Substance-form is merely one of them. Why are they all possible, and what can be evidence for or against any of them?

Remembering that we have neglected our original antithesis of dream-world and seen-world, and even our insistence on the formal identity of the witnessed in reaching our contrast of Prospero's thesis and materialist thesis, let us return to the latter.

Prospero seems to substitute a mind-stuff for the matter which gives substantiality to the materialist's world. But the point seems fairly clear that what we call history remains the same on either thesis. What I am now going to argue is that just as fact statements are what enable us to give meaning to different sciences and to philosophy, and to relate sciences to sciences and to philosophy, so historical statements

give meaning to certain scientific statements and metaphysical theses.

If "Caesar crossed the Rubicon" is a true statement, then both "substance" theories accept it as true, along with a host of other statements, and if no such statements are true, there is no meaning to be given to "substance", or of Space and Time - there is nothing to talk of at all. Whatever metaphysical statements we may want to make, whatever statements we may want to make about metaphysical statements or about fact statements, metaphysical problems have their source in common-place fact assertions, in what we take to be true and state as true. Such statements include, without ceasing to be fact statements, statements about relations between identifiable and distinguishable things, and the relations include spatial relations between things and temporal relations between things; alongside these relation statements are temporal activity statements which are dated by means of tenses and specific dates and references to simultaneous activities. Among the much else that is included is a class of statements about "substance" and "stuff", the sense of which would make "Caesar is of the same stuff as a tomato, a pine tree, a piece of granite, a puff of wind and the very best bitter" nonsensical even to those who found it transparently clear that the whole historical world must be made of one stuff or two stuffs.

History remains the same, and fact statements remain the same. Beginning here, we may get to problems about

gravity", and deny them extension in order to get "pure space" and convert all our measurements into measurements of distance, and until we have done this (perhaps with some justification as physicists) our science of measurement is a science of the world because the relation between things and space is not "external" but "intimate". The intimacy is here "predication", a logical and not a "real" relation; the things in question are extended - they are extensions in the sense that any thing which is Y can be called a Y. Calling them "forms of extension" states the intimacy in another way; "x is a form of extension", "x is a form of extended substance", "x is extended", say no more than each other.

Familiar things like trees and men, iron bars and microscopically observable fragments or unities can be values of x in such statements. The scientist may want to "conceive" other values of x, to conceive things with different descriptions from those of familiar things. Until he provides the different descriptions he either says nothing or makes statements about "x", statements not about "a thing" but all members of a class, any thing which is in fact extended. And as I argued above, when he provides the descriptions the relation between the conceived things and familiar things is that between what is conceived to be so and what is otherwise taken to be so. If what is conceived is so, the relation is matter of fact or empirical, and reference to "conception" is irrelevant; if "conception" is relevant, then our talk of

"a relation" demands, to be meaningful, a conceiver who is otherwise aware of what is so - concept-thoughts must be intimately related to a substance-thing by the intimacy of "x does think", "x does conceive" - and who can provide some sort of argument in the form "what is so could not be so unless" or "if what is conceived is so, what is so must be so".

If we take actually encountered things to be values of x in "x is extended", then certain of the things are also values of "x is a thinking thing". The intimate union of "thinking substance" and "extended substance" is to be found in "men are extended and think". The same man is a form of extended substance and a form of thinking substance - unless we contrast not "thinking" and "being extended" but "thought" and "extension". "Forms of extension" we can treat as familiar bodily things or as conceptual; "forms of thought" we can treat as any thought, or as classes of thoughts - with due lack of scruple we can treat the classes as sensations, imaginations, dreams, reflections, judgments and conceptions, the members of which will differ from each other in form - and from then on all that seems clear and distinct is that we have very little idea of what we are saying in any statements about "substance" or "forms" or the relation between our two substances. If we treat "p is a form of thought" as "p is a sensation, imagination, dream or....", we can, after determining whether a particular "p" is a sensation or a dream or... consider the "content", the statement of what was sensed or

dreamed or... in relation to other statements which present the "content" or another type of "thought", what was sensed or dreamed or...., and once the content is specified our question of "form" becomes "of what are the things sensed, dreamed, conceived etc. forms", and the things are dogs, centaurs, mathematical equations, omnipotent deities or propositions in logic.

9. For Prospero or for the materialist, History as fact statements remains the same. Caesar crossed the Rubicon. Caesar (almost) swam the flooded Tiber. Accept Cassius' account in Shakespeare's play as History - it is easier to consider this than "Shakespeare wrote a play", since Caesar's swimming is more easily an event or a dream. The event belongs to the past. We understand the statement, and can let the natural light radiate.

The Tiber still exists, at the moment not in flood, and with deeper deposits of silt than in Caesar's day. In a million years the Tiber may have disappeared. It may be remembered; it may not; that for multitudes the Tiber does not exist is irrelevant to any question of whether or not the Tiber exists even now. If the Tiber ceases to exist, then at one time both "the Tiber existed" and "the Tiber does not exist" will be eternally true, and at any time the two statements, with the unspecified dates specified, will be true. The statement "the Tiber existed" has to be known, understood, as true, in order to belong to History; knowing that it is true is knowing that the Tiber belongs to history, and this is knowing that

"the Tiber existed" belongs to History. What is stated in History is identical with what is history; what is history is in part identical with History and in part does not "appear" in History at all. And all this means is that we can give an account of some of the events of the past, and can discover and give an account of other events of the past. "Caesar swam the Tiber" is indubitably a thought of mine to me while I am thinking "Caesar swam the Tiber", but if I call the thought "a form of mental substance now" the relation between the historical act of over 1900 years ago and the occurrence of a form of mental substance now is "over 1900 years" and that only. Once we stop thinking about forms of thought we can raise the questions "Why do we think that Caesar swam the Tiber?", "How do we know that Caesar swam the Tiber?", and these permit of answering and critical consideration of the answerings. "Why we think" can easily be twisted into "how we come to think", but not into "How we think", which seems to lose all flavour of meaning when it is completed by "Caesar swam the Tiber".

Caesar, before he swam, was a form of flesh and bone and blood, a form of body, an extended substance; the Tiber was a form of water, a particular river in an unusual though not extraordinary (flooded) form. Even if the spate ceased a little, the form changed, as Caesar swam, the Tiber remained the Tiber, still a river, still a body of water, a form of extension or extended substance or body. When Caesar emerged a hole to keep the wind away. The form of an extended substance

he was still Caesar, a man with a form, lighter perhaps through sweating, wrinkled perhaps in skin with fear and cold, older and wiser, perhaps greyer, less ebullient. He had lost attributes (which did not remain in the Tiber), acquired attributes (which were not in the Tiber); the Tiber had perhaps lost and acquired attributes, certainly had if we call "containing Caesar" an attribute on the ground that "the Tiber contained Caesar" was a true statement. The Principle of Identity applies, but it did not sustain Caesar in the Tiber; the Principle of Difference did not annihilate Caesar. The water and Cassius sustained Caesar; the water almost annihilated him.

A series of statements of a logical or grammatical kind which are (if with some difficulty) able to be understood as truly made of the noun "Caesar" or the subject "Caesar" in a series of true statements are completely meaningless as statements about Caesar, as statements of history or statements in History. The historical statements are meaningful to those who have no knowledge of the technical terms and meaningless to those who can claim knowledge only of the technical terms - and to be the latter it would be necessary to understand grammar and logic without an acquaintance with sentences and statements.

Caesar now is dead, and his flesh may (inaccurately) be said to have turned to clay, while he (with poetic licence) may be said, if certain other events have occurred, to stop a hole to keep the wind away. The form of an extended substance

changed, or was changed, from human to irregular cylindrical, the substance stayed the same. Caesar the Emperor is Caesar the Bung.

And this seems both sense and nonsense. Given the account of Caesar's death, of the putrefaction and change of his flesh, its becoming part of a mixture of earth and the results of putrefaction, and the moulding of part of the mixture by someone into a serviceable shape for plugging a hole in a keg, "Caesar is a bung" is meaningful and true - if we understand it as "Caesar became a bung" and can expand "became" into the historical account. The historical account itself is history as written, say, for bio-chemists or criminologists, men who are interested in some questions about Caesar and not in the least interested in Caesar as Caesar the Emperor, soldier, statesman, husband and social animal. No one expects the bung to issue edicts, or exhibit behaviour indicative of having fallen in love with another Cleopatra. A quite rational man might argue that for the issuing of edicts or further Caesarean amatory experiences the bung would have to become Caesar, and many rational men have produced arguments which are relevant to the question "Under what conditions could Caesar re-appear after being in the bung stage?".

If geometers had any capacity for dealing with irregular and changing volumes, a geometrical history could, after observation, be provided of Caesar and the bung, and such an account would be of interest - to geometers. They could, with more looseness than in early times, be called "earth measurers".

(a) The greater degree of looseness is clear from the fact that the initial measurements or forms are not of earth at all. It is true that the series of statements of formal change, taken in isolation from further statements as to what was measured and had the form, do not "entail" that the measurements of forms were of Caesar or of flesh or of anything else; and if it is held that it is logically possible to have forms only if they are of a substance, the lack of entailment can be indicated by the disjunction "flesh or earth or cement or water...", a disjunction which can be determinate only if we add "and these are all the substances which can be in the forms in question" as a known truth. The argument to necessary substance terminates factually in one of these, or in a further claim that even if it is one of these it is really a substance which is none of these. Any of these substances may appear at different stages in the historical account of changing things, and they may be said to change and to become one another in some cases, and to be capable of assuming many forms.

Yet much of what was said above of Caesar's becoming a bung is in fact nonsense. Accepting the historical account of Caesar and bung, we begin with a form of flesh and conclude with a form of earth - substance and form are each different at the ends of an historical process. Change of things is compatible with difference of substance and of form. Only if we insist on "Caesar changed form from human to cylindrical" is there "rational compulsion" to argue to a single and unchanging

substance which makes possible the change of form within the identity of a persisting thing "Caesar", and once we expand the account into historical detail "the identity of a persisting thing Caesar" is almost completely devoid of meaning. But accept the change as change of flesh into putrefaction and earth mixture, and deny that history is what connects the substances in a process of change, and we seemingly must look for a new identity in the guise of a substance in changing forms. No one of the phase-substances can be the substance because it changes; insistence on the historically latest or last is pointless because the earlier substances were not the last. Caesar was not made of earth if earth means that as which his bodily decay concludes; and the thesis that Caesar began as a form of earth is merely stupid. *is the formal account, but not vice versa by a principle.*

The history of forms leaves out all substance; add that the history is of forms of substance, and we leave out all substances. "Dust unto dust" is a familiar statement, which we are assured was not spoken of the soul; and we know why the statement was so often made, why it was not spoken of the soul. Those familiar with Bacon realise the historical importance of the account of creation which involves dust and the Divine in-breathing of the "breath of life", even if they can find no justification for any post-creational dualism in Genesis, which seems to leave the creation of further human beings to familiar activities of Adam and his rib-derivative. *History*

Dust is a poor candidate for substance because we know what dust is, what dust is not, can give an account of it and alter it; considered seriously, the term collapses into a series of disjuncts and one of the forms in which substance may appear. And applied to any man post Adam, including Caesar, if "dust" has any of its usual meaning, "he was a changing form of dust throughout his life and after his life" is sheer nonsense.

(b) "Extension" is in better case, since we can say of growing from foetus to senile corpulence that it is a matter of changing extension, and we might even extend this to the succeeding generations of extensions which preceded the birth of Caesar. But the purely formal account has no entailments, once again, as to substance or thing; we can get from history to the formal account, but not vice versa by a principle, and if we attempt to say "existing is just a passage of one extended form into another" we leave out all history. Leaving out the things which may be called forms of substance or substances, and we seem headed for a blank space in which nothing happens, a space which is the ultimate substance itself and in which "forms" are meaningless. For history we require that things should be spoken of as extended, and as changing extensionally; history is unaffected if "things are forms of extension" is equivalent to "things are extended"; and if "things are forms of extension" is not equivalent to "things are extended" then the statement falls right outside history.

(c) Granted that this holds of flesh and human bodies, it may still seem arguable that the historical statement about changing flesh and resulting substances does not entail any statement about emotions and activities, loving or issuing edicts, being born or dying. There is, then, no reason why we should not surrender "Caesar is a bung", "Caesar became a bung". It was Caesar's body that became or is. If the body-history is self-contained, Caesar and his history fall outside it. In so far as my History is in terms of Caesar, man, statesman, soldier, ~~emperor~~, a human being who was born and died after doing many things, my History may be fundamentally wrong. Caesar may have been a thing of a non-bodily kind.

No one has claimed that Caesar was a thought or a form of thought; Descartes claims him to have been a thinking thing, a soul or mind; but he also claims him to have been an intimate union, and all that is wrong with my History is that it lacks a set of statements about men being intimate unions, although it contains statements about their thoughts, desires, passions, and passionate activities. What we should say of the form and substance of things which occupy bodies intimately and do think neither Descartes nor anyone else informs us. The argument to souls is, as I have claimed above, from acts to agent, and the removal of body as not logically necessary for the agent. Form and substance are relevant to thought or thoughts, not to agents. Of the agents we can say that they do, what they do, not what they are.

(c) "Caesar swam the Tiber" is an event, was an event. History

is made up of events and, it may be claimed, events alone are real. All that is real is what happens, what goes on, the flow of occurrences, the flux of process. This is intelligible enough, but if it is simple counter-thesis to the matter-substance thesis, we are headed inevitably for a blank time in which events or occurrences are all, while yet there is nothing to occur. Events do not persist, and after the date of their occurrence there is nothing left of them.

Professor Samuel Alexander, concerned with special problems of Space and Time, concluded that Space and Time must be "intimately united" if we are to make sense of our talk of events and if we are to say anything about Space and Time. He recommends us "to keep constantly pictures of material things and events before (the) mind, and then forget their richness of colours and smells and other qualities" (Space, Time and Deity, I. 39); and what we discover as we proceed is that we are considering things and events "in their simplest and most elementary character. We learn that the naive view of Space and Time as a receptacle or framework in which things and events are found, which makes the connection of things with their space "almost accidental", is so helpless that it drives us into a "relational view", a view for which space is a matter of relations between things and time a matter of relations between events (p.38). Alexander argues, as I have argued, that the things spatially related are spatial; Space and Time are not "merely the order of coexistence or succession".

I, on the assumption that Historical statements do state or are statements of events in history, refer directly to history (or indirectly to history via History) to give meaning to my statements about Space and Time and Events. In similar fashion I can give meaning to talk about forms and substances, a variety of relations including internal and external and constitutive, to agents and acts, qualities and attributes, essences and accidents, individuals and modes, and all the Principles which are expressed in such terms. Alexander, however, proceeds to a "third hypothesis", that of Space and Time as "the stuff or matrix (or matrices) out of which things or events are made, the medium in which they are precipitated and crystallised; that the finites are in some sense complexes of Space and Time".

"In the language familiar from the seventeenth-century philosophy, things and events are 'modes' of these 'substances', extension and duration. In the same way instead of supposing that extension is a partial character of a colour or a touch, we may suppose colour to be a character of the extension, that what we see is not extended colour but coloured extension"(p.38).

The second sentence will seem incoherent, stripped of its connection with a preceding page, but it serves to bring out Alexander's starting point: we have no sense organs for apprehending space and time, our sense organs enable us to apprehend only sensations, and the task is to get from such apprehended sensations to a spatio-temporal familiar world. It is only in Book II that Alexander undertakes the long process of demonstrating that Categories are fundamental properties of Space-Time, and of elucidating the Categories.

What becomes clear as we read is that the goal is the expansion of Space-Time propositions, of statements about forms of a substance Space-Time, into a world and, as in the case of Descartes, into a familiar world. True, it seems unfamiliar enough as it "unfolds" with an embarrassment of riches into Mental Space-Time and Physical Space-Time, and the leaps from Space-Time to Events, from Space-Time to Categories, from Category to Category, are like plunges into complete darkness which happily land us somewhere. Like the Hegelian leap from the Category of Being to the Category of Essence, they evade Reason, though Reason is professedly our only compulsion to proceed from the (empty) security of a necessary truth.

But the discontinuity of the leaps is exactly what we found in the case of Descartes and his Principles, and it is similar to the discontinuity of axioms and postulates and theorems; and these are "irrational" only while we assert that principles or axioms or necessary truths are all we have and from them we must reason into the darkness of the unknown. If we can recognise that our ultimate goal is the familiar historical world from which we began as metaphysicians or scientists, that if we never achieve "connection" with that world we are not doing science or metaphysics, we must suspect that Alexander is, as Descartes seems perpetually to be, arguing in the wrong direction. The task is not to move by argument from metaphysical truth to metaphysical truth.....to historical facts, but to demonstrate metaphysical truths in

relation to historical fact-truths. From whatever metaphysical truth, whatever truth of reason, we begin the argument will hold: "Unless this and that other metaphysical truth, then no historical fact statements".

Even the notion of "ordering" seems to prove delusory here. Descartes, for all his confusion of different types of statements in his Principles, never got to facts; it is the very difference between metaphysical truths and fact truths which makes it impossible for a sum of metaphysical truths to "constitute" a fact truth; but the main point is that it is painfully obvious that there is nothing which could be called "order" in Descartes' arrangement of principles, and less obvious but more painful is the interested reader's discovery that there is no "rational order", none of the professed deduction of categories, in Hegel's elaborate presentation of them.

I am not crying "Hegelian nonsense" here, being acutely conscious that in so far as I am treading a philosophical path it was Hegel directly and via Anderson in Sydney, and Aristotle and others who taught me to walk.

10. If, in apparently brutal and naively realist fashion, we refuse the metaphysical paths which have been indicated above as producing forms and unknown substances or ultimate substance, and contradictions, what happens? We recognise that as well as a subject called history there are subjects like geography, anthropology, geology, anatomy, physiology, botany, astronomy...and if there could be no such subjects

there could be no history, if history is what is stated in our History. We find no reason to suppose that astronomers "invented" the heavenly bodies, that biologist's "invented" organisms. True statements can be made of the "Roman moon" and of Caesar, and the Roman moon was no more substantial than Caesar because we can point to the same moon as they pointed to, and "Caesar is nowhere now" does not give a postal address.

History is a matter of events, but it is a matter of events like "Caesar swam the Tiber". When we consider such an event, we can make many statements about substance and form and change in relation to Caesar, or in relation to the Tiber; we can make necessary statements, even about the event - it must have preceded other events, succeeded other events, been contemporaneous with other events, since it occurred in this world; and while this "necessity" cannot provide us with a statement of any particular event, we can in terms of our understanding of the one historical statement provide a series of statements about particular events which must have occurred if Caesar did cross the Tiber. The historical statement and its fellows makes no use of "form", "substance", "attribute", "relation"; using those terms we can indicate that classes of statements, which must be true if the account of Caesar and his swimming is to be in any way adequate, are actually involved in the understanding of the historical statement or statements.

The minimum requirement for a statement is that something

should be said to be true or false of a thing; a statement of change requires that what is at one time said truly at another time cannot be said truly. The grammarian's "there must be a subject and a predicate" parallels the logician's "there must be a substance and an attribute", though as I argued at length above, the parallel is not strict. The subject is a noun, and what has the attribute and persists while an attribute ceases to "apply" is a persistent individual thing named. The thing truly spoken of exists.

The looseness of "attribute" and "naming" need not worry us if we consider that we are talking about statements meaningful in our language. "Caesar swam the Tiber" is such a statement. "Caesar" is a value of x in "if x is a substance, x is a persisting individual". It is only when we treat what is said of and what it is said of as separable things, put the subject-substance in one compartment (physical or mental, existent or idea) and the predicate-attributes in another, that we get "persisting individual thing" as necessary but unknown, i.e. " x " and not a value of x as subject of all statements.

Whatever substance as individual thing we name, it will be a kind of thing, numerically distinct and generically distinct from other things, though generically identical with some other things. "Caesar" is a value of x in "if x is an individual, x is of a kind and not of other kinds". We have begun to restrict our predicates or attributes now, without specification of the class.

Many attributes may be at different times asserted of Caesar which are not to be asserted truly at other times. With Prospero absent, Caesar is no longer Caesar when he dies and becomes a bung. The individual ceases to be an individual when he ceases to be a member of a determined class, ceases to be of a special kind, when a defining attribute ceases to apply. So it seems that Caesar is Caesar while and only while he is human, though all other attributes may at times not apply. All that remains constant and unchanging is "humanity", and if by "substance" we mean "that which is constant and unchanging" then "humanity", essence or definition or principal attribute, is substance.

If we consider statements about Caesar or other things which are historical, each is a value of x in "if x is an historical thing, x is of a kind all the time it persists". The many possible kinds are indicated in our classificatory system or systems. If we declare the kind to be substance, and manage to decide which level in our system is to be the "real kind" or "first actuality" we have changed our philosophical terminology. It still remains to declare that our substance in the second sense is an individual substance in the first sense before we can talk of the Kind as a Universal and persisting, appearing here and there, being related to other Universals, as being in different places at different times and at different places at the same time.

To the complaint that this is unintelligible the answer is that the complainer does not understand what Universals are, since Universals are just substances which do what they are said to do; to the complaint that it is meaningless the answer is made by pointing to a proposition recognised as intelligible, "Caesar is human", and declaring that this is what is meant by, or this really means, "Caesar is an instance of Humanity". The difference between Cassius and Caesar is stated as: "Humanity occurs in different forms, and both are such forms".

Once we have "fixed" the individual as a form or instance of a Universal, we can proceed to write our history as before. Caesar, as a form or instance of Humanity, can swim the Tiber, can be related to a form or instance of River or Riverness. Indeed, Caesar as form or instance of Humanity could not exist unless he were related to other forms or instances of Humanity and other Universals, and these relations, like acts, are different from one another and classifiable because some are like others, so that they too can be regarded as instances or forms of Relation or Act.

If we accept "substance" as the unchanging condition of and individual's persistence as an individual, then substance may be Kind or Act or Stuff or even Relation. For Descartes at various times and places in his writings, the essence of an individual man is "thinking", doing what brutes cannot do; as substance, "thinking" becomes "thought", and is an "existence" independent of body; become "thinking" again, it demands

an agent, a thing-substance whose essence it is, and now the essence or substance of a man is relation, intimate union. Contrasted with extension in its forms, related as complex to the forms of extension which are somehow "thought" and "thoughts", thinking becomes thought again, and thought-stuff in forms; and when the extended world becomes things in relation, the thought world becomes things in relation. Thought qua thought is thing or substance which patterns or forms the thought-things into thoughts; motion qua motion-thing patterns into things the particle-things which it formed by acting on the res extensa, the extended substance which is extension.

Throughout we have actual individuals, kinds, acts and relations, or what purport to be actual individuals etc. designated by familiar and non-technical terms, and it seems fairly clear that whatever we decide is to be called "substance" in relation to any individual, we cannot deny the necessity of the other non-substance terms if we are talking about historical things. At best we get one statement true of an individual all the time he or it persists, and this contrasts with, but does not falsify or deny, those statements which are true at one time and not at another. History, in other words, cannot be reduced to statements of the form "x is y at any time", however many individual values of x and individual values of y there may be.

Caesar may be regarded as a form of man, of animal, of matter, of extension, of rationality, of thinking substance. In the sense that has concerned us primarily in this chapter,

namely substance as stuff in form, Caesar was a form of "flesh" - and this term is almost meaningless to us because we are familiar with distinctions between flesh and blood and bone. Once we recognise this distinction, we also recognise flesh and blood and bone to have forms and Caesar to have a structure, a structure similar to that of other animals. The child's "form of substance called flesh" is transformed into "structure of forms of flesh and bone and blood" (though we may be dubious of "blood" as formed in the same sense as flesh and bone). On the strength of cutting and peering through microscopes, flesh and bone can be expanded into cells and tissues and fibres, and muscles and bones into structures of cells or of tissues and fibres which are structures of cells - and cells, according to biologists, can likewise be investigated and instead of forms of protoplasm they become structures of forms of other substances. On the strength of baking and dissolving, all of these substances can be "reduced" to chemical constituents, and where the substances have the same or similar chemical constituents, they have the same name and can be called forms of a chemical substance.

We may note however that the bio-chemist includes an element of history in his symbolic statements, the substance he began with being related to what he concludes with after baking and dissolving by an arrow instead of an equals sign. His statement is "if you do x to y you get z", where y and z may be complexities and x a complicated procedure; he uses the term "irreversible" to indicate that he cannot do anything

to x to get back to, or to, y - a complexity which has different features and behaves in different ways from x. The chemist uses the equals-sign, and excludes history: or so it seems, until we realise that the top bar of the sign may be the sign of a complicated procedure in a laboratory and the bottom bar an entirely different and also complicated procedure in cases where the chemist has discovered it.

The Tiber was a form of water, of dirty water; it was a structure of mud and water and a variety of chemical constituents related differently to water from the way in which mud, itself a complex of constituents for the chemist, was related to water. By mechanical and chemical means the chemist can separate from dirty water similar to that of the Tiber the particles of earth and the chemical constituents, leaving pure water, which was also a constituent of the Caesarean body. From "Caesar is a form of flesh", a specific form of a specific substance, a variety of empirical transformations of "form of substance" into "structure of formed substances", we arrive perhaps at minute cells, and a bio-chemist hopes to transform or structure inorganic stuffs or elements into such a cell, thus reversing what was previously irreversible, and to proceed by a series of reversals of the previously irreversible to arrive at a "manufactured man".

If he does, when he does, history will include events it has not previously included, the long and complex account will be vitally interesting to many scientists, and statements about non-manufactured men, like Caesar, will still be part of History. "A man is really made of atoms of hydrogen,

nitrogen,oxygen....." will be true, just as "a man is a structure of muscles and nerves and bone and bloodvessels" will be true, and any of the statements, if we add "just" or "only" after "a man", will be false.

Caesar swam, and in so doing did many other things, performed many acts consciously and unconsciously, many of which are components of the act of swimming; the Tiber flowed, and continued to flow after the period when Caesar swam, the Tiber flowed, and anything else in the universe that was doing anything at all near to or distant from Caesar or the Tiber was doing what it was doing. And Time neither swam nor flowed nor did anything at all.

The account can be expanded by means of "Caesar was a man, therefore....", "the Tiber was a river, therefore....", "if what he did was to swim a river, then.....". If we understand the terms "man", "river", "swimming", we can make further statements of what must have been so prior to the event, statements about the history of Caesar or the Tiber. All our terms are familiar terms, and we proceed under the aegis of universal propositions of the form "all such are so". Our expansions are, however, limited in particularity - Caesar must have had a head, had parents, the Tiber must have had banks and a source and a mouth; but we cannot describe the head (though we can expand "head" into necessary parts, whose difference from parts of other heads evades us), the parents (though we know they were human, and male and female), the banks and the source and the mouth. All this we can do, it

may be said, because we know what it is necessary to be in order to be a man, a river, swimming. These are "universal truths", "eternal truths", truths available to the Cartesian mind independently of experience, and truths even if there is no world in which experience of the things in question could occur.

It is true that Descartes does not do much with the truths I have specified; it is also true that if we try to move from instances of men, rivers and swimming in search of what is identically man, river, or swimming in each case our universal propositions become very meagre. But Descartes refuses, it will be remembered, to accept "rational animal" as a definition of himself, because of the complex expansion of "animal" that would be required before one arrived at a "truth" which was simple and obvious, and the simple notion of thinking which denotes or represents an act which can be experienced and "grasped" expands for him into a complexity of disjuncts, classifiable as "willings" and "thinkings". In the sense that "thinking" is any of these, the agent for Descartes does all of these. (When we consider Aristotle's position below, we shall see that it contrasts with this in insisting that certain of the disjuncts may belong to organisms which are not human while others do not. Descartes takes it for granted all men are alike as "thinkers" - he proves "other minds" and "no animal minds" by reference to speech capacity, and "mind" is identical in all as defined by Descartes).

The universal truths are obviously important in our reasoning, and in them we can indicate distinctions of subject and predicate, individual and attribute, substance and form, thing and function and structure. Nevertheless, none of these terms need appear. Descartes, wanting to deny that "substance" is ever encountered or known "directly", employs a different set of necessary truths; if we state "every predicate is of a subject" and treat predicate as "quality or act or form or attribute" and subject as "thing or substance", we have from my point of view a statement about all statements, and from Descartes' point of view a rational, intuited and necessary truth which enables him to infer from "y is a predicate" to a substance-thing. What I have argued at length here is that there could be no justification for asserting "y is a predicate", no possibility of understanding "y is a predicate", unless we have experience of situations describable as "x is y". Unless "subject" is given a value, we have no statements, but a meaningless combination of a variable or logical term and an ordinary predicate by a copula which belongs to neither.

In the light of our discussion above, we can make a series of statements which look at first sight like the mongrel expressions with logical and real terms. If Caesar was not a form of a substance he did not exist; if he did not act, there was no event; if he had no attributes, he was nothing; if he was not related to many things he did not exist and no event occurred. There is no sense in which these

statements are to be understood as meaning that all except the existential statements are true, while the existential statements are false, and this holds if we give real values to "substance", "form", "act" and "relation". And we are not saying that the existential statements may be true and all the others false, that Caesar existed but was not the bearer of any of the "predicates".

If we make the subject of the statements "Caesar", as I have done, then "form of substance" can be expanded as I have indicated (into structure and formed substances etc.), "act" can be expanded into all the things Caesar did, "relations" into a vast range from merely spatial to political. The "totality" would be history, the listing at any point of achievement when we stopped to make the remark, is History. The falsity of "Caesar did such" constitutes error in History, designates nothing in history. Unless we have in mind some such operation as that which bears his name (cf. Macbeth), however, "Caesar was not born of parents" would be equivalent to "Caesar did not exist", and entail that our account is not History.

11. At this point the logician-metaphysician may well object that "Caesar was not born" is not even a logical contradictory of "Caesar was a man", and that I am assuming. He may invite me to declare that I have made "All men are born" analytic; but since I am not concerned with turning fact claims into "necessary truths for me" I am content to leave it as merely true, historically true. If he wants to deny it to be

true as matter of general fact or history, that is another matter.

My goal here is "higher". From consideration of "Caesar swam the Tiber" as a statement of an historical event, a statement in English, we can, using only the natural light and our understanding of the statement as made in the world in which the language developed and the stated event occurred, devise a complex statement about any thing, or any account of a thing, couched in a wholly technical vocabulary. We can devise: If no statement can be made truly as to the substance, form, attributes and relations of a thing then there exists no such thing; no thing persists if it does not remain the kind of thing which it is over the period in which it may be truly said to persist and to exist, though this is not incompatible with its changing in persisting, or with variations in the true account which can be given of it at different times; and if a series of statements can be made of a thing as substantial, formed, attributed and related, then a statement that the thing did or did not act or react in a particular way is intelligibly true or false".

It is true that all of these terms, which I have called technical, appear in discourse; they appear especially in questions, and they can all be treated in my statement as variables with an indefinite number of values. Given a value to "thing", e.g. Caesar, we can exclude many values of each of the other terms as impossible components in an account of the particular thing. There is no reason why we should not refer

to my complex statements as presenting, if incompletely, the metaphysical structure of things or of any thing, of any thing which we can conceive or think of or talk about as an individual existing in our spatio-temporal world, provided that (a) we recognise that what it means is to be exhibited by reference to classes of true statements, and (b) that we are talking philosophically, not making biological, physical, chemical, mechanical, psychological or historical statements or analyses.

And this, roughly, is what Aristotle was talking about when he was raising the question of Categories as a special question, related to but not part of his established logic and his science. His particular problems we must consider below.

12. At this point I must pay the penalty for not considering in detail various philosophers' lists of categories, and uses of the term which are different from mine. I am arguing at a comparatively simple and primarily Aristotelian level, though not "strictly according to Aristotle". He does not in fact include substance-stuff-form in his Categories, though he has much to say of it elsewhere; and he can hardly be said to list potentiality-actuality, though he discusses it in the Categories. In the next chapter, when I consider how thing-stuff-form operated in thought and discourse, I can do something to show why potentiality-actuality must be considered, and stuff-form is in a special position because any substance-form statement seems replaceable by a thing-structure statement after further study. The basic claim is that there are classes of statements which are essential to History, History which no one "really" wishes to deny - and yet quite traditionally

universal propositions derived from, or contained in, classifications, are "timeless". So, too, are definitions. But Aristotle, concerned with classifying and not rules for classificatory structure in abstracto, recognises that a definitional "All x are ab" is meaningful if the class ab has members which are individual xs, and he sees as clearly that treating an individual x as one, existing, persisting, and a member of the class "X" or the class "AB" and no more is metaphysically hopeless as Descartes sees in it the foundation of all metaphysics. Descartes converts a definition into an historical truth by adding Time to the individual defined, and so gets necessary fact and eternal substance-thing. If we put any noun into the subject, any adjective into the predicate, definition or not definition, only by fiat can we add that the noun is the name of a thing eternal; and our fiat is equivalent to saying that the thing we are talking about is absolutely unlike all the individual things of which accounts appear in History, and whose location at any place at any time, like their coming to be and ceasing to be, is a matter of empirical fact - or falsity.

The essence or definition of x is ab; if there is nothing which is not both a and b, no a which is b, then ab is neither essence nor definition. A cataclysm which destroys the majority of existing xs leaves the classification unaltered; if it destroys all xs, our leaving the classification unaltered does not annihilate the cataclysm. Any true proposition "x is y" entails "x exists" unless we have reason to ask "when?", and we can readily call "y" a principal attribute

or essential attribute since if it has an opposite it can determine a class. Death does not thereby lose its sting, nor any individual which is x the necessity of having non-essential attributes if it is an x or a y .

If we glance again at the Cogito, we can see: a fact claim as to thinking, made by a thinker; a suppressed recognition of the subject because "Ego Cogito" is merely a fact claim; "thinking" declared essence; subject inferred, one and existent, persistent and non-historical; subject labelled "I" to make it historical and "mind or soul" to preserve the non-historical and eternal necessity. If the "Ego" is intuited, as an object and existing, there is only fact; if the "thinking" is "perceived", it has to be recognised as act before the natural light can add "and there must be an agent"; only by adding "and the agent can be known in no other way" can we prevent the light shining further and adding to "the agent persists necessarily only while the thinking goes on" that the agent is an identifiable thing which is a man or Descartes; and if we declare "thinking" to be an essence we declare only that even if "thinking things" is a class to be indicated always in our classificatory system, no thing which ceases to think will, even if it continues to exist, be known as a thinking thing or by a name which means "the bearer is a thinking thing".

(a) At the highest level of logic, with only true-false and relations of implication in question, we need only a subject-predicate form for statements. If we replace all

our ordinary nouns by "thing of kind x-ish", instead of "All X are y" we can write "All things x-ish are y", but our minimum intelligible existential statement will be "a thing which is x-ish exists", and the truth of the universal proposition gives us "no thing which is x-ish can exist unless it is y". "No thing can exist unless it is x-ish" is plain nonsense. No word-juggling can convert historical things spoken of in ordinary discourse into non-historical things, or non-historical "eternals" into historical.

Any predication may be labelled "definitional" if we disregard the logical features of our language and the actual features of the world which it enables us to talk about. If we recognise activities and relations as different types of predicates, these too can be labelled "definitional" under the same conditions, and the same futile argument can be advanced as with predicate in its most general sense or with predicate in a quality-sense. Label "y" or "does y" or "Ry" a predicate, and there must be a logical subject or metaphysical subject of substance; label any one "essence" and the logical or metaphysical substance or subject lasts not for a time but for all time. It falls outside History.

And it cannot fall outside History. Every major argument above culminates in the claim that the attempts to get beyond History fail.

It is difficult to believe that the impossibility cannot be formally and finally proven. If the relation between "sub-

stance" or "subject" and "predicates" or "historical propositions" is logical, then it belongs with History: this is borne out by the claim that nouns in statements can be replaced by "thing-substance", the result being equivalent statements. If "substance" is non-logically, factually related to the historical world, then the relation - and the substance - is historical. Such an argument probably holds, but the level of statement is so general that vagueness makes meaning dubious. The argument that if we deny predication (the logical relation) we assert a relation between substance and attribute and (a) can never state what the relation is, and (b) can say nothing without reverting to predication, seems to me to hold. But many philosophers have, like Bradley, founded metaphysics on the acceptance of the double impossibility.

(1) At what we might call the strictly logical level, it seems patent that using only the terms "substance", "attribute", "principal attribute", "essence", we can say nothing at all - or we can state endlessly necessary truths about substances having attributes, any substance having a principal attribute, an essence... If we extend our vocabulary, and say "a substance is one, persists, exists", "attributes adhere to... or...inhere in, substances", our statements are vacuous unless they are related to historical statements. If we add "substance is known only as that in which attributes inhere", this involves historical claims, which Descartes never hesitates to assert in terms of "we know", "we know only", "we have only the idea".

Recognise an historical world, the meaningfulness of historical statements, and "all subjects have predicates" is intelligible. So, too, is "principal attribute", "essence", "definition". So, too, is classification. So, too, are universal propositions and statements in logic. Values given to the terms "subject" and "predicate", "have" becomes "is", true-false is a meaningful distinction, and intelligible statements are part of history and of science. Argument is possible, and formal features of arguments can be stated.

(2) At a sub-logical level, it seems apparent that using the terms "substance", "attribute", "relation", "act", "form"... we can say nothing beyond our statements of necessary truths which are correlations of pairs of terms. Give values to each term in such a pair, and we have historical statements. These statements have logical features and logical relations; argument is possible. They have non-logical features and non-logical relations as well.

Substitute any historical term for any one of a pair of necessary correlatives, and we get a necessary question. As historical premises entail an historical conclusion, a statement "Y is an historical form" entails "there is an historical substance of that form", and this is equivalent to "there must be an answer to the question 'What substance?'". The "principles" answer no questions, present no inference, but indicate a question to be settled. The question demands a justifiable assertion of a real value for one of the correlatives of forced substances, then explanation becomes more effective. Descriptions explain actual action on the model

atives, and if "Y" is the value, a statement that Y is correctly taken to be a value must be true. In other words, "Y" must be meaningfully used in fact statements which are correctly described as instances of the correlative principle.

A full statement as answer to a form-substance question will be "this thing x is a substance y in the form z". This is not decision or fiat - it is a recognition that this class of statements is different from the class whose members take the form "any x is a form of x", which are classificatory. Ignoring this distinction is vital to Descartes. "A thought is a form of thought" is equivalent to "a thought is a member of the class thoughts", "any particular thought is a species of thought". We can formulate in many ways if our usage is loose enough. But loose conversion of "x is a y" into "x is a form of y" does not convert y into a substance in the sense of substance that the category class form-substance demands.

(III) What now emerges is the possibility of a class of statements being treated as a class of explanation of members of another class. "X does Y because it is a form W of a substance Z", "X is Y because it is related to a thing Z". Balls bounce, sheathes insulate wires, because they are made of rubber. The handle is hot because it is or was near the fire. The tree is dying because it no longer has a water supply.

When substance-form, under investigation, becomes structure of formed substances, then explanation becomes more effective. Descartes explains animal motion on the model

of mechanical statues and windmills, whose structure of formed substances and related functions he understands. Any solids admit of the form and structure required, only some admit of the function and continuance of the function, and no liquids or gases will admit of either, except in containers. Motion in general he explains by "(conceived) particles move", and a conceptual system of such forms of substance provides a structured universe and another explanation of animal motions. His anatomy is a different question - it produces complex structures of different substances on the one hand, but mere body and an hydraulic system on the other. So we achieve an explanation of animal motion - when we add corporeal images and convert the heart into a boiler.

What stays for science is part of the anatomy and most of the Method. The contrast, however, seems plain between the transformation of formed-substance into structure of formed substances under the guidance of empirical observation, and the transformation of formed-substance into structure of identical formed-substances in the opposite direction and under the guidance of the natural light. Stripped of the "identity" of substance at the base, the latter is a principle of construction, and it is detectable as such in the use of the terms thing, substance and form in ordinary discourse.

(IV) Denial of a category is the rejection of a class of statements as meaningless or as reducible to another class. But this reduction is not like that of treating the classes

as of the same logical form. At the level of subject-predicate, of only true-false, category distinctions cannot be raised: having a subject and a predicate distinguishes no statement from any other.

We cannot, at will, re-write fact statements from one category into another - that they have common logical features does not annihilate metaphysical distinctions. And as with subject-predicate, so with the metaphysical correlatives: no technical term will appear in fact statements, distinctions within which or between which are indicated by using the technical terms.

The argument "I think, thinking is an attribute, attributes inhere in a substance, therefore thinking goes on in me" is philosophically idiotic. So, also, is the argument that thinking is an act, extension is a quality (which establishes a difference of category, not co-classifiability), and both are attributes and both are forms of a substance and both may be the same form of different substances. We are at the same time, in the same argument, asserting and denying category differences, concealing the contradiction by using a mixed and meaningless mode of expression.

(V) We may wish to alter the form of a statement for one of a variety of purposes, but the correctness of a category determination is the form in which a statement enters History. What I have tried to show of dreamed occurrences and witnessed occurrences is that both enter History as "X dreamed 'A'", "X witnessed 'A'", and "X witnessed 'A'" entails that A is

an historical account. It is only by isolating a particular instance, one in which the accounts are the same, and by both maintaining and denying the dream-witness distinction that we make the identity-of-form argument possible, and the consequences of the possible argument result in further contradictions. Prospero, and the materialist, can include "dreams" (and all forms of "familiar thinking") in History only by reverting to "x dreamed" ("x thought"). It is true that either could include both by positing located and continuous process of "thinkings" at various points in a non-thought, non-thinking, universe - provided they are not requested to give an account of the different species of "thinking", are not requested to give an account of themselves as thinkers, provided they can give an account of such continuous processes as continuous changing forms of an unextended substance, and provided they are prepared to surrender all observation statements and all sensory knowledge of the non-process world by the "process". We can, readily enough, call the result a "conceptual system". Monads need have no windows. In the system "we" have no men, no familiar world, and no history - each monad, we as monads, individually have a history and "think" History and men in a familiar world? But we clearly have homo cogitavit, the theoriser theorised...and many have both disagreed with and tried to understand Leibniz.

It is "mere fact" that Leibniz enters history as the writer of books and a metaphysician, that his theories enter the history of philosophy and of science, and that we under-

stand part of Leibniz because we know that he wrote after Descartes had written and his writings been read by Leibniz. We know that the monads could not have windows because a foundation of physics was threatened if they did. And are we really surprised when, in the Nouveaux Essais, Leibniz takes the familiar historical world for granted and proceeds to consider primarily the questions which I have been raising of the role of categories and the justification of classes of statements, of necessary truths and logic in relation to History?

(VI) When the metaphysician gives values to one term in a correlative pair, using ordinary language terms in giving values, and denies values to the other, he must (unless he rejects History) write History using a "necessary entity" and his value-terms. He seems immediately to be bound to an "intimate-union" of the Real and the Unreal, the Necessary and the Contingent, and a new correlative necessary Truth. All I can purport to show is that if X and Y are correlatives in a necessary truth that has historical application, the metaphysician converts X into "necessary-X" and his statements have "necessary-X" as subject (for example) while yet the relation to the diverse predicates cannot be in the same sense necessary, and no statement can in the same sense be necessary. It is perhaps contingent that the "necessary-X" can, treated as a variable, be given historical values and converted into merely historical truths, of each and every predicate of which it can be said that it must have a subject

and that it does have a subject; but if we believe that the distinction between the actual, the necessary and the possible, as classes of statements related under the conception of "true", are not so related that the actual is impossible or unnecessary, this need not perturb us unduly.

The metaphysician against whom my arguments fail to have any effect is the metaphysician who accepts logical and metaphysical statements as I have listed them, and supplies all his own nouns, verbs, adjectives, prepositions etc. But that is to supply his own values, to have the same grammar as mine and a totally different vocabulary. Neither disagreement nor understanding are possible after agreed statements have been communicated. But this is not the case with any metaphysician or scientist who claims that his statements are in some or any way related to the human world.

(VII) My list of categories is minimal, incipient, not exhaustive. I have made no contribution in this thesis to the problem of what would determine that a list of categories was exhaustive. The move from Subject-Predicate to Substance-Quality, Agent-Act, Substance-Form, Relata-Relation, is not deductive, but by recognised distinctions, and its justification is "If History, then these classes of statements". The "real" metaphysical principle, applicable to metaphysicians from Thales to Wittgenstein, is "If History, then as well as your claimed category or categories, these categories...."

It is not coincidental that this is what Hegel discovered

in the history of philosophy, and that it provides the rationale for his developing system of categories - I plead my debt even in denying Hegel's claimed "deduction". Nor is it coincidental that the same principle alone seems to justify Descartes' disorderly ordering of Principles, or that the same principle seems clearly relevant to the theoretical development of various sciences, and to the problem of the relation between different sciences. In the last case the claim must be asserted in relation to the fact-claims of the various sciences, and it is these fact-claims which (a) can be related to the system of statements which I have called History, and (b) alone give meaning to the scientist's claim that his non-fact assertions are explanatory.

Aristotle's special problem is that the "timeless" universal propositions and definitions of his logic and his science, and their related "particulars", i.e. propositions quantified by "some" or "this" as distinct from "all", presuppose a persisting unitary subject-thing as a member of a class or thing of a kind (a "bearer of attributes"), while all the individual things he is interested in are historical and many (the biological) are short-lived and change in a pattern while persisting as unities which in fact, and obviously in fact, are complex. Descartes' problem could not arise for Aristotle, i.e. of accepting universal propositions and definitions and then trying to prove that something which exists is spoken of and defined. For Aristotle the difficulty is of determining classifications and extending them, arriving at universal propositions and

definitions (or extending them) given historical occurrences and factual complexity. Fortunately or unfortunately for him, fortunately for science and philosophy, Aristotle was rejecting a series of systems of concepts handed to him, and hence could not taken them or any of them for granted as the "natural endowment of rational souls". He was forced to hammer out the concepts which, altered and in many ways made rational and sterile by misunderstanding, became the "natural" endowment of Descartes at La Flèche.

The "things" he was concerned to classify and to define were not the result of classification and definition, nor what was left over after a classificatory system had been completed, nor simples and self-identicals arrived at by a process of argument. The things are dateable persistents, whose complex accounts include statements of different types, and many statements of each type. Included in these statements are multiple sets of contradictories - of one individual thing what is true at one time is false at another, and the contradictory itself may be false at another time. (We may, if we prefer it, speak of "contrary" rather than "contradictory" - strictly neither applies in its formal sense because of the dating of the truths). X which is Y does Z at t^1 ; x which is not-Y but W does not do Z, perhaps cannot do Z, at t^2 ; yet X is the same individual, the same kind of thing, throughout. X is the same and yet X is different; X persists and yet X changes.....

To understand why this was so much a problem to the

Greeks we must turn to the history of philosophy and especially to Plato and his wrestling with it. We come to understand at the same time why later philosophers, reverting to a primitive logic, draw the conclusion that "x must be different from its differences", and treat the differences as history and Unreal while the different-x is real - and Unhistorical. But, Aristotle seems to have recognised, if x is an historical thing, e.g. a man, then there is no contradiction. Crudely stated, "if there is history, then there cannot be a contradiction". Give values to all the symbol-variables in the "statements", and we have history and no contradictions. Socrates, at one time mewling infant and at another irritating philosopher, was throughout the same individual, in spite of the universality of the truth that no mewling infants are philosophers (and in spite of the fact that no dissection of the infant would have revealed the hidden "individual" identical in infant and adult).

If we give values to both variables in our logical and metaphysical statements we have history and no contradictions; the process of double "cashing" is what reveals the nature of "logic" and "metaphysics", and our justification for calling our necessary truths logical or metaphysical.

(VIII) The metaphor of "cashing" is dangerously misleading if it prompts the conclusion that, as there are cheques and notes, and the use of one is equivalent to the use of the other, we can dispense with the cheques, as Empiricists claim, or with the notes, as Rationalists claim. It is useful only

in criticising those who claim that by cashing one variable they can achieve fact statements. They offer us neither cheque nor cash. That p is a member of the class of statements whose form is P is the justification for the complete cashability, but it gives no reason for our classifying statements. The core or nucleus of our category classification, however, is the recognition that x 's being the subject of a member of one class of statements entails that x is the subject of statements of other classes for an indefinitely extensible list of individual historical values of x , and this features of such individuals can be converted into a necessary truth by definition of the individuals as subjects of members of classes of statements so indicated.

We convert actual features of discourse into necessary features of discourse, actual features of statements or thoughts into necessary features of statements or thoughts, actual features of History into necessary features of History. The point in the defining is like the point in all empirically important defining, specifying distinctions which, ignored or obscured, produce error and confusion. The metaphysician insists on "necessity" when a scientist or a fellow metaphysician declares that a class or classes of statements are unnecessary, or when a scientist or metaphysician introduces into History a term which is claimed to function in some ways like a member of one class of Historical terms and in other ways differently.

Discussion at this level must be somewhat vague.

When we turn to actual discourse, science and history, we can specify directly what at this level we are talking indirectly about. Even if the drop from the simplicity of Substance, Individual and Form, to the complicated and unimpressive realm of substances, individuals and forms is like an ejection from the Eden of Ultimate Reason and the Clear and Distinct, let us see how the terms in our metaphysical talk, stripped of capitals, actually operate at commonplace levels where truth and existential claims are not necessary but "actual". If we begin with "thing" and "substance", perhaps we can find how other technical terms follow and, on my argument, must follow - and why they do and must.

Chapter XI.

Thing and Substance in Ordinary Discourse.

The two aims in this chapter are (a) to show a variety of uses of "substance" and criteria for determining "substances" when no technical-philosophical sense of the term is in question, the criteria being patently similar to those advanced by metaphysicians, and (b) -p.473 - to show the function of thing, form and substance in statements whose form is "x is made of y". We are, it is claimed, concerned with inter-related concepts which find a use in natural science.

We proceed to establish that certain related Aristotelian concepts can be derived from statements in natural science. Hence

2. Essence and Being are discussed. "What is it for a thing to be such?" is contrasted with "What is it for a thing to be?", and this is related to substance and attribute.

3. Potentiality is re-asserted as a valid concept, which Descartes is forced to use in its Aristotelian sense. Aristotle asserts that statements of "becoming" are valid statements in natural science, and so in metaphysics he recognises "becoming" as a concept. He accepts history, and organic life and death as historical facts; he is able to present a correct logical account or analysis of "change" statements.

4. The role of different sciences is presented from an Aristotelian point of view - many sciences can be concerned in giving an account of one thing or class of things familiarly distinguished, and this constitutes the meeting place of sciences.

A meaning is given to "metaphysical structure of the world", without in any sense denying history or science, in terms of categories as classes of statements in natural science and history.

5. (p.517) Arnauld's criticism of Aristotle's Categories is presented and discussed. We are able to indicate how statements in logic, statements in metaphysics, statements in different sciences, and familiar-world fact-statements, are related to one another.

... have no use for anyone thinking that his method of coupling diverse things together is better adapted to the discovery of the truth than mine, that gives the strictest possible distinctions to every single thing. But, stopping the verbal controversy, let us look to the facts in dispute.

"It is equally obvious that the term 'substance' appears in everyday discourse with something of the sense in which it appears in philosophical treatises".

Chapter II, above.

"...rem quamdam sive substantiam..."

"Next he quite correctly says, that we cannot conceive any activity apart from its subject, e.g. thought apart from that which thinks, since that which thinks is not nothing. But, wholly without any reason, and in opposition to the ordinary use of language and good Logic, he adds, hence it seems to follow that that which thinks is something corporeal; for the subjects of all activities are indeed understood as falling within the sphere of substance (or even, if you care, as wearing the guise of matter, viz. metaphysical matter), but not on that account are they to be defined as bodies.

On the other hand both logicians and as a rule all men are wont to say that substances are of two kinds, spiritual and corporeal. And all that I proved, when I took wax as an example, was that its colour, hardness and figure did not belong to the formal nature (rationem) of the wax itself (i.e. that we can comprehend everything that exists necessarily in the wax, without thinking of these). I did not there treat either of the formal nature of the mind, or even of the formal nature of body."

Descartes, replying to Hobbes.
H and R. II. p.63.

"I admit also quite gladly that, in order to designate that thing or substance (which understands), which I wished to strip of everything which did not belong to it, I employed the most highly abstract terms I could; just as, on the contrary this Philosopher uses terms that are as concrete as possible, e.g. subject, matter, body, to signify that which thinks, fearing to let it be sundered from the body.

But I have no fear of anyone thinking that his method of coupling diverse things together is better adapted to the discovery of the truth than mine, that gives the greatest possible distinctness to every single thing. But, dropping the verbal controversy, let us look to the facts in dispute.

Ibid.

Chapter XI.

Thing and Substance in Ordinary Discourse.

It is not necessary to say that the word "thing" is used in many different senses. It is used to denote a particular object, as a stone or a tree; it is used to denote a class of objects, as "things" in general; it is used to denote a quality or attribute, as "things" which are beautiful; it is used to denote a relation, as "things" which are connected; it is used to denote a process, as "things" which are going on; it is used to denote a state, as "things" which are the case; it is used to denote a person, as "things" which are done by him; it is used to denote a thing, as "things" which are made of wood; it is used to denote a thing, as "things" which are made of metal; it is used to denote a thing, as "things" which are made of glass; it is used to denote a thing, as "things" which are made of paper; it is used to denote a thing, as "things" which are made of cloth; it is used to denote a thing, as "things" which are made of leather; it is used to denote a thing, as "things" which are made of silk; it is used to denote a thing, as "things" which are made of wool; it is used to denote a thing, as "things" which are made of cotton; it is used to denote a thing, as "things" which are made of linen; it is used to denote a thing, as "things" which are made of flannel; it is used to denote a thing, as "things" which are made of muslin; it is used to denote a thing, as "things" which are made of lace; it is used to denote a thing, as "things" which are made of ribbon; it is used to denote a thing, as "things" which are made of thread; it is used to denote a thing, as "things" which are made of yarn; it is used to denote a thing, as "things" which are made of twine; it is used to denote a thing, as "things" which are made of cord; it is used to denote a thing, as "things" which are made of rope; it is used to denote a thing, as "things" which are made of cable; it is used to denote a thing, as "things" which are made of wire; it is used to denote a thing, as "things" which are made of steel; it is used to denote a thing, as "things" which are made of iron; it is used to denote a thing, as "things" which are made of copper; it is used to denote a thing, as "things" which are made of brass; it is used to denote a thing, as "things" which are made of tin; it is used to denote a thing, as "things" which are made of lead; it is used to denote a thing, as "things" which are made of zinc; it is used to denote a thing, as "things" which are made of silver; it is used to denote a thing, as "things" which are made of gold; it is used to denote a thing, as "things" which are made of platinum; it is used to denote a thing, as "things" which are made of palladium; it is used to denote a thing, as "things" which are made of rhodium; it is used to denote a thing, as "things" which are made of iridium; it is used to denote a thing, as "things" which are made of osmium; it is used to denote a thing, as "things" which are made of ruthenium; it is used to denote a thing, as "things" which are made of cobalt; it is used to denote a thing, as "things" which are made of nickel; it is used to denote a thing, as "things" which are made of manganese; it is used to denote a thing, as "things" which are made of chromium; it is used to denote a thing, as "things" which are made of vanadium; it is used to denote a thing, as "things" which are made of niobium; it is used to denote a thing, as "things" which are made of tantalum; it is used to denote a thing, as "things" which are made of tungsten; it is used to denote a thing, as "things" which are made of molybdenum; it is used to denote a thing, as "things" which are made of cadmium; it is used to denote a thing, as "things" which are made of indium; it is used to denote a thing, as "things" which are made of thallium; it is used to denote a thing, as "things" which are made of lead; it is used to denote a thing, as "things" which are made of bismuth; it is used to denote a thing, as "things" which are made of antimony; it is used to denote a thing, as "things" which are made of arsenic; it is used to denote a thing, as "things" which are made of selenium; it is used to denote a thing, as "things" which are made of tellurium; it is used to denote a thing, as "things" which are made of polonium; it is used to denote a thing, as "things" which are made of astatine; it is used to denote a thing, as "things" which are made of francium; it is used to denote a thing, as "things" which are made of actinium; it is used to denote a thing, as "things" which are made of thorium; it is used to denote a thing, as "things" which are made of uranium; it is used to denote a thing, as "things" which are made of neptunium; it is used to denote a thing, as "things" which are made of plutonium; it is used to denote a thing, as "things" which are made of americium; it is used to denote a thing, as "things" which are made of curium; it is used to denote a thing, as "things" which are made of berkelium; it is used to denote a thing, as "things" which are made of californium; it is used to denote a thing, as "things" which are made of einsteinium; it is used to denote a thing, as "things" which are made of fermium; it is used to denote a thing, as "things" which are made of mendelevium; it is used to denote a thing, as "things" which are made of nobelium; it is used to denote a thing, as "things" which are made of lawrencium; it is used to denote a thing, as "things" which are made of rutherfordium; it is used to denote a thing, as "things" which are made of dubnium; it is used to denote a thing, as "things" which are made of seaborgium; it is used to denote a thing, as "things" which are made of bohrium; it is used to denote a thing, as "things" which are made of hassium; it is used to denote a thing, as "things" which are made of meitnerium; it is used to denote a thing, as "things" which are made of darmstadtium; it is used to denote a thing, as "things" which are made of roentgenium; it is used to denote a thing, as "things" which are made of copernicium; it is used to denote a thing, as "things" which are made of nihonium; it is used to denote a thing, as "things" which are made of flerovium; it is used to denote a thing, as "things" which are made of tennessine; it is used to denote a thing, as "things" which are made of oganesson.

Thing and Substance in Ordinary Discourse.

I assume still that ordinary discourse and argument are meaningful, that fact statements are meaningful and true, or if false can be denied by the assertion of other fact statements which are true; I assume that we can determine the circumstances under which fact claims can be established or facts truly asserted, since this is equivalent to the claim that discourse is meaningful. I assume that science, as our knowledge of the "world", develops in terms of fact statements qua what is stated to be so and truly stated to be so; and that the sciences of logic and of grammar are concerned with the structure and relations of statements, though differently concerned.

The word "assume" is, it is true, rather misused in the paragraph above. It serves, for the moment, to indicate what I am not intending to justify, and am not going to question, and to indicate no more than that.

That any "thing" is a substance as subject in the sense that any existing thing we can speak of is a kind of thing which is different from other things in kind, and that it is related to things of various kinds, that it can be stated to be of its kind and to be so related, seems clear to the natural light. If our accepted, though perhaps unspecified, criteria for the difference between chairs and constables, or between this and that elephant, are not questioned, then Descartes' "res sive substantia" indicates a pair of

equivalent terms. Aristotle's identification of "substance" and "individual" is similar to, if not identical with, the Cartesian.

I take as a heading "Any thing is a substance" to provide a focus for consideration.

1. Any thing is a substance.

This seems patently false. We do not call chairs and tables "substances". We do not call any thing we can name a "substance". We use the name.

When we do not know the name, we refer to it as a "thing"; when we know the name we do not call it a thing. Yet we would point to it when asked "what is a thing?".

When we know the form (the shape, the function, the behaviour, the appearance) we do not even ask what substance it is. We do not bother to ask what sort of substance chairs are made of - though we may. When we encounter something unusual in the way of chairs, we enquire as their substance: "What are they made of?" The answer will be in terms of what is colloquially "stuff". Hence we can say:

(a) A substance is what things are made of.

We distinguish between wooden chairs, leather chairs, fabric chairs and plastic chairs. The "substance" determines the kind. But this is not held to be different from, or incompatible with, but equivalent to "is made from such and such a substance". Plastic is not wood, nor leather fabric. They are different things entirely.

Substances (from which things are made) are of different kinds. Hence we can say that:

(b) A substance is a kind of stuff.

The chemist is concerned with distinguishing substances, with making substances of which chairs and bottles can be made. He takes some commonplace thing, a wild plant or a poppy seed, a substance like beer or bauxite, and he analyses it. He finishes with things like belladonna and opium, riboflavin and aluminium, new substances and useful or dangerous things. We mere mortals call salt a substance, but he calls it a compound, because he knows it is made up of two things, sodium and chlorine, a metallic substance and a gaseous substance, which he can separate out from salt. When he has separated them, and has sodium in one bottle and chlorine in the other, he has established that they are different substances. Hence we can say:

(c) Substances exist, or can exist, on their own.

The chemist's criterion is independence, separation or separability. If he suspects that a substance is a compound, he will not rest until he has produced two substances. But the salt in my cupboard, and the salt encrusting the rocks by the sea shore, a fine powder here, a coarse crystalline mass there, so little resembling that only when I tasted the mass did I even suspect that they were alike in any way, are the same substance for him. A fine diamond set in a ring, a piece of coal on the hearth,

the black powder used in making crackers, the lead in a child's pencil, these are different things, different substances, different in appearance, in function and in use. For the chemist, however, they are the same substance, which he calls "carbon" and finds in plants and all organic structures. Hence we can say that:

(d) The same substance can exist in many places and in many forms at the same time.

The criterion now seems to be "kind"; they are the same in kind, of the same stuff, though they have no apparent feature in common. But the carbon in the diamond is in one sense not the same carbon as that on the hearth; one may be in New York, the other in Hampstead. They are made of different bits of carbon, just as they can be broken into bits themselves, and the bits will still be the same substance. Yet gunpowder is a substance, and it can be divided or "broken up" into sulphur, carbon and potassium chlorate, which are three substances. Two substances, bits of one substance, many substances, can occur together and make one substance, a kind of thing that occurs at one place. Hence we can say that:

(e) A substance can be divided into the same substances or into other substances.

Two things can have the same form and the same substance, and be indistinguishable to us. To make sure that it is not the same chair that I see now that I saw before, I have

to make sure that there is still the chair in the room which I left. I discover identical twins when I see them together. The chemist declares: This isn't the hydrochloric acid I was using this morning - the bottle is half full and I used at least three-quarters of a bottle. Hence we can say:

(f) Separability is a criterion for things of the same substance (or kind) as well as a criterion for different substances.

We refer to any kind of substance as simple if it is uniform, if it is the same stuff. But any specimen of it will have form, have features. Hydrogen is a simple substance, but it is a gas and colourless and has volume; a molecule of it has duality and structure; an atom, we are told, has shape and a complex structure. Contrasted with "kind", the particularity of "thisness" seems to demand complexity. Kind, considered as stuff, involves simplicity - and yet a stuff may be complex, have many attributes. Hence we can say:

(g) The simplicity of substances contrasts with the complexity of compounds, not with the complexity of features possessed by things.

(Typically, when a substance term functions as a predicate it becomes simple - as "kind" - but when it figures as a subject it has complexity and a history. A chair is just wooden, just made of wood; but wood is a complex of chemically distinct substances, of cellular structures, and the wood in

this chair, in this chair, in any chair, i.e. "This" wood, has a long history).

The substance this chair is made of is wood, but the wood was once a tree, a plank or a number of planks cut from a log. The wood suffered many transformations and transportations before it became this chair. But it is still the same wood, as it will be if I make a bookcase from this chair. So that we can say:

(h) A substance can have many forms in its history and still be the same substance or the same thing that it was originally.

We can add now one further point, and leave it still possible to note further distinctions and similarities between thing and substance. There may be on a table several fine eggs. When we bite one, we make no impression, when we bite another, our teeth grate and remove chalky fragments; when we bite a third, it yields and we can tear off a mouthful of something chewable and sweet; when we bite a fourth, it resists, yields with a crack, and a sticky yellowish fluid mingled with painfully sharp fragments is left on our lips. I shall not make a separate item from this, but indicate only that there may be several things which are in some ways indistinguishable (have the same form, features, appearance) and yet be made of very different substances (marble, chalk, nougat or "egg") and that we may in this sense "know the form" and not know the substance. But in each case of this or that "egg" we have in fact a

variety of criteria by which to distinguish the substances. Only if we add the condition that the "eggs" must not be broken, must not be damaged in any way, can only be sensorily "observed", does it follow that "we can never know the substance". But if this is a universal condition, then we have no means of giving a meaning to "egg" in the normal sense at all.

It is this sort of situation which prompts the thought that if minds are aware only of the ideas which things somehow cause in (or on) them as effects which correspond to what we "think" are sensory qualities of things, such minds cannot "know anything at all", can never understand what we mean by eggs, and minds which refuse to surrender their illusion that sense-data are objective have to stick their sense-data onto the outside of a "thing" which is unknown because they can never find eggs to attach them to. Something like this must, it seems, follow if instead of we (men) being things that perceive and sense in a process of being interestedly related to other things, what "senses" is declared to be something "inside" us and what is sensed is declared to be something inside us or something "outside" things.

.....

We have already, above, eight different uses of "substance", eight different feature of substances, eight different criteria for determining substances. At no stage have we been dealing with Substance, but with substances; with carbon and wood, plastic and sulphur, salt and belladonna. Equally we have

not been concerned with Thing but with particular things of particular kinds - chairs and diamonds and bottles of acid. But, recognising that we are concerned with things and with substances, what is the difference between the two?

We would not, I think, want to call chairs and bottles and diamonds substances, but we would scarcely hesitate to say that sulphur and leather and plastic and gunpowder were things which you could use, which you can buy in shops, which are cheap or costly and so on. If this is so, the criteria for being a substance are criteria for being a thing. Yet there still seems a difference: a substance is a kind of thing, perhaps? But what things are not kinds of thing? Chairs and bottles and tables are kinds of thing. Things are particular, while substances are general? But to get to a particular thing we have to say this chair or that chair, a chair or the chair (and these, of course, are different in another sense, in another mode of particularity and universality), and we do the same with substances. This chair is an instance of "chair" - there is nothing odd about "an example of, a specimen of, Elizabethan furniture, of an Elizabethan chair" - but it is equally an instance of "wood". Wood, or what the chair is made of, is the material or stuff of which it is made. The materials include nails and screws and glue, which are things, surely enough. We can buy them and use them without knowing what they are made of.

We do not, however, say that things are made of chairs; nails and screws are made of steel (or other metals), but

nothing is made of nails or screws in the same sense. And the distinction perhaps helps. In any expression of the form "x is made of y", x will be a thing and y will be a substance. But it is equally true that if we are interested in y then we will find a number of true statements of the form "y is a and b and c" or "y is made or made up of z". Equally, many values of x will be predicates in statements like "A is made of x" - bricks are made of clay, houses are made of bricks. "Made" and "made of" (and "made up of") are different, but this need not concern us here, since neither all things nor all substances are "made", i.e. the question of "constructing" is irrelevant to the general question.

Yet there is some distinction here, a distinction that seems to be indicated by "x is made of y", although this does nothing to show that y is not a thing, and it would in fact be meaningless to say that any kind of thing could be made of y unless by y we meant something of a kind, unless we could also say "y is a and b and c". We have to recognise that y may be a thing or things. Further, when we say "chairs are made of wood", or "some chairs are made of wood", we are using "chairs" generally and "wood" generally, and when we talk of this chair we can recognise that it is made of this wood, while any wood we encounter will be in some sense a this - a plank, a piece, a log, a billet, a fashioned article. There is still a difference: a piece of chair is not a chair, a piece of wood is wood and a piece of wood.

Unless this were so, we could not make chairs of wood.

Homogeneity is thus suggested as a feature of substance as against thinghood, the latter implying particularity and individuality. As soon, however, as we think of wood apart from "this chair is made of wood", "wood" becomes a this wood as against "that" wood, mahogany or white wood or ebony as contrasted with cedar and walnut and caneite. A classification of woods is just like a classification of chairs into armchairs, deckchairs and kitchen chairs.

Homogeneity, nevertheless, does seem important. When we say "raincoats are made of gaberdine", "shirts are made of silk", we are thinking of the kind of material of which, while it is one and identical, many things can be made. There is no limit to the material, no form in the sense that the shirt or the coat, a shirt or a coat, has form. Things have a form or pattern which the material lacks - and the material would be (almost) useless if it already had such a form. Yet we can still say that gaberdine is made of wool, silk is made of the threads of worm-web, that each material has its own pattern and form, as threads of wool and web have their own form.

Things have a form and are made of a substance; when we consider what they are made of, it appears as thing with its form and its matter. Yet the first mentioned things are things of a kind, too. Shirts are shaped to wear from silk; silk is woven into a pattern from worm-spun threads, a bundle of silk fibres.

One further question: what has the form, the thing or the material? The material is cut to a pattern and then it becomes a shirt. The shirt is the formed material, the substance in a possible shape, one of many possible shapes (though scarcely an actualised possible mode of extended substance with the silk stuck on). What now of the distinction between "thing" and "substance"? The thing and the substance are not related as thing to thing: shirt is not to silk as driver to car, ash to ash-tray, silk to gaberdine. Wear the shirt and we wear silk. Sit on the chair and we sit on wood. Form and matter are one and the same in that where there is form there is matter, where there is the formed-substance there is the thing with its form.

In all matters, thing and form are correlative; in all things form and matter are correlative. By a "thing" we mean a formed matter, a substance given a form. (We mean more, though). How plausibly we can attribute this to the growth of human demands and interests: stone is just stone until a fragment fits a stick or is discovered to cut; it becomes a stone, an instrument, a tool, a knife. Sandstone is just rough stone until it is chiselled, and behold, a statue. And these things are distinguished from substances only until they themselves are used to make something else. A lump of clay left in the sun becomes a thing, but brick, like stone, is a substance from which houses and paths are made. A knife is not like a brick; in particular cases we can make the distinction between thing and substance.

But unless we have the particular case, or particular cases, in mind, we chatter about "thing" and "substance".

(And note the rough parallel with "genus and species", "cause and effect". Talk generally, without particular events or occurrences or things in mind, as if there could be general and species while there were no things, no bears and apes, as if there could be causes and effects unless particular events of different kinds involving different things could be noted, and we can arrive at First Causes, a Highest Genus, a First Substance-stuff, by a single argument, which involves only the statement of an obviously true principle and the contradictory of it, e.g. every event is the effect of a cause but the First Event is not the effect of a cause).

Add, too, as illustrative hypothesis, that things are determined by function and use, by need and character. This piece of stone is an axe-stone, a killing-stone; we attend to it because we have the need for a killing-thing in a world of things we need to kill. Otherwise it would pass unnoticed although it was (as we can now say) of manageable weight and nicely pointed. What I am trying to suggest is the complexity of the situation of interaction in which sense-perception and discrimination are possible. The aim is not to portray a state of nature, to portray the ultimate natural simplicity before perception and language began, but to throw back into consideration as an obvious feature of any experience what has long been dispelled by philosophical essays which could be headed: Give an account of sensation and perception without mentioning either the thing that perceives or any thing that can be related to the perceiver; Give an account of appetites and needs and

interests without reference to anything which is desired or needed or focusses attention: Give an account of thinking without mention of anything thought about, of language or communication or motivation, of the thinker or speaker or any purpose he may have in opening his mouth. By pulling our problems completely out of context we get answers very easily, but we cannot explain what questions they answer - and that, I suggest, is one of the reasons why we have so many "definitional equations" in theory of mind and conclude with "unknowns", or "unknowables".

This piece of stone is an axe-stone, this is a cutting-stone, a skinning stone. So we can classify in an exhibition, and put up a notice "Knives through the ages". The matter or substance changes, from rough stone to shining steel; the form changes from clumsy half-flaked flint lumps that are barely distinguishable from unfashioned fragments to a delicate scalpel's fragile thinness. What is in common is perhaps, as well as the function, having an edge. And in every case the material, the substance, existed before the thing; and only certain kinds of substance, certain materials, can have certain forms imposed upon them, can be made into certain kinds of thing.

2. What has this to do with philosophy, with philosophy of mind, with Aristotle, or with Descartes?

Primarily, we have trodden the first half of the path that Aristotle trod in reconsidering the problems and solutions

of his predecessors, and the complete impasse which they had reached. The impasse can be illustrated by reference to Zeno, and the clash between Pythagoreans and Parmenideans, or between the Socratic doctrine of forms and Parmenidean monism. We have noted at least something of the subtle complexity of ordinary discourse and its use of "thing" or "substance", a subtle complexity very different from the pre-Platonic, and any rationalist, treatment of the logic of "substance" or or "things".

And we have already illustrated a number of Aristotelian doctrines, and can perhaps see the significance of them as logical doctrines, as indicating certain formal and universal features of the things we talk and think and argue about, the only things we encounter familiarly, and not as indicating new "entities", even if it is not yet clear why it was necessary to introduce them in this way. Let us now consider the Aristotelian doctrines in a summary fashion.

(I) Matter and Form.

The Aristotelian doctrine is that matter, as the stuff or as the substance of which things are made (in the general sense I have used above) is inseparable from form. Whenever we speak of a thing, whatever thing we speak of, we can recognise it as a formed matter, though when we raise specific questions of the matter in question, when, for example, we ask of any thing "Of what is it made?" and investigate, we will find ourselves talking of some other matters and their form. Familiar things which we observe, manipulate and

discuss are always like this. Empirical investigation reveals multiplicity of kinds of thing, multiplicity of forms, multiplicity of substances - the further we go the more we get. A man is, for the child or the philosopher, meat with a shape. For the man who is seriously concerned with the study of man, the "meat" expands into flesh and blood and bone, into nerve fibres and lungs and organs of different kinds and structure. Further:

(a) A thing is a formed matter, but the form of a thing and the form of its matter are not such that any form can be had by any matter. What kind of thing goes with what matter is a question for empirical enquiry. Knives are made of stone or bronze or copper, perhaps, but not of water or cloth or bread; animals are made of flesh and bone etc.; fruits consist of other than flesh and bone.

(These summary illustrations are not intended to present a complete Aristotle. I do not wish to claim that Aristotle had got completely away from the four elements, the hot and cold, the wet and the dry of his predecessors, or even from the associated fire, air, earth and water - three of which Descartes restores. But the doctrine of form-matter is independent of "ultimates", even if it can, as I suggested above, produce "ultimates" by simply contradicting itself as a principle.

There is also, I have maintained, a sense in which all sciences determine their own "matter", the substance-analysis of which is not the concern of the sciences in question; and part of what metaphysicians have been concerned with is the determination of the "ontological" status of scientific "ultimates". Hence so frequently it is the philosopher who is concerned to deny the scientist's claim that his "ultimates" are "ultimate constituents of reality".

Nor is the theory of the four elements a "simple" theory. It is in many ways even more complicated than the contemporary thesis that there is only the dry - nothing is really hot or cold or wet, but feeling makes it so).

(b) When asked what is the difference between this chair and that chair, the form and the function being the same, we refer to the material, the stone or the wood. This Aristotle calls finding the material cause or the material essence, claiming that in the case of any statement "x made y into z" the question "what matter-stuff was y?" can always be asked. He was also aware, I believe, that if there is only one "material", then the "material essence" is useless for science. Explanation depends upon difference if difference is to be explained. The "material cause" or "material essence", in a statement of a necessary principle of explanation, is equivalent to the disjunction of different substances or matters. We get a "metaphysical matter" only by misinterpreting the formal principle, treating it as a necessarily true fact statement. "All things which can be changed are forms of a matter" actually implies a plurality of things, and the variety of matters we encounter is not denied by the principle. Add, however, that all things are identical as things, all matters identical as matters, and we seem to have established a necessary relation between Thing and Matter, and all things are, as forms of Thing, forms of Matter.

Facts, and history, and science, remain however as before. We may say that things differ from things and matters differ from matters purely as forms of the one Thing and forms of the same Matter; the forms we encounter and "know", the

Thing and the Matter are unknowable. But what we are then saying is that any statement like "a chair is made of wood" entails "wood is a form of an unknowable substance", and this seems to mean "every intelligible statement about familiar things which are forms of any substance entails the truth of a statement which is necessarily meaningless to the maker of the intelligible statement".

What is assumed is that (a) we can understand a variety of empirical statements about things and their matter, (b) that having grasped these we can formulate a principle, and (c) we can argue to necessary but unknowable Thing and Substance. Nevertheless (c) is indistinguishable from a statement of the principle which includes no reference to instances, and such a statement would be unintelligible to anyone who in fact knew no instances. The meaning of the principle can be exhibited or grasped only in the instances; and this seems to be what is meant by calling certain statements "principles".

It is in this sense of "principles" that the philosopher or the scientist, having noted that he or others has been proceeding in investigations by asking "Why?" and "How?" and "Of what stuff?" or "How structured?", can make positive statements using a technical vocabulary which are readily intelligible to all who have been so proceeding, and call the statements "principles". But the scientist who asked "What caused this corrosion?" and answered "Hydrochloric acid", or the ordinary man who asked "What broke this window?"

and answers "A thrown stone", are not required by the stated principle "Every effect has a cause" to assume that they were wrong, and should now talk about causes causing effects, and not acids corroding metals and thrown stones breaking windows. The scientist who has been listing the many substances of which things he investigated were constituted correctly interprets the principle "all things are made of a substance" as somehow equivalent to the statements he has been making and to the many statements he will make as his investigations proceed.

"No thing is made of a substance" is to him nonsensical, if not meaningless. Equally nonsensical to him is the suggestion that once he has grasped "All things are made of a substance" all his investigations are superfluous, either because he knows the answer to all questions now, or because no answer can possibly be intelligible. That he has been "employing" or "taking for granted" the principle all the time is something he can accept as an accusation or as a description of his procedure, and he needs no more than the success of his procedure to make the accusation harmless and the description correct. If "things" means "chalk" and "charcoal fragments," and "substances" means "calcium carbonate" and "carbon", then the principle is intelligible and holds; if such things and such substances are not what are referred to in the statement of a principle, he does not know what the principle which is stated to him means.

But neither does anybody else.

(2) Essence and Being.

(a) When we are asked for the difference between spoons and spears, both of which are bronze, we refer to their use or function. This we may call the formal or functional explanation, or the formal or functional definition, and we may talk of the formal or functional essence of spoons and spears. They can, in other words, be described or classified instrumentally.

The "being" that Aristotle was searching for is the answer to the question: "What must this thing be in order to be the thing it is?" It was not just his question, but an established one, and the answers commonly given involved matter, form and function. A house is not a house unless it is made of something, stone or wood or earth; unless it has a shape; unless it keeps out the elements (its function). Any one of these serves as an answer to the question, but a partial answer only. That there are several answers possible leads on to the further philosophical question, "What must any thing be in order to be a thing?" Aristotle's criticism of his predecessors was largely that they had asked this question and answered it in terms of the first question, and given only one of the possible answers as the only answer. This needs elaboration, but briefly: they, like Descartes in his physics, assumed one Substance, one Matter, and tried to show that all things must be formed from it; or they assumed a multiplicity of identical units,

again like Descartes, and a principle of patterning; or they assumed a limited number of different units, and a principle of combination.

(Difference is observable, but is to be explained by postulating a material identity and a principle which causes difference. The argument must be from facts (contingency) to ultimates (necessity); the problem is then to join the two worlds into one. I am stressing a central problem, and ignoring much that is vital in pre-Socratic theory - Heraclitus is a revolutionary who insists that change is a feature of the world, that "x exists" implies "x is changing"; Socrates insists that the forms are unchanging, and change is a matter of forms coming and going. The first maintains the reality of the world as we find it, the second denies it, and provides the basis for Cartesian logic, metaphysics and theory of mind and ideas).

(b) When we know the substance to be the same in spoons and spears (both being bronze) we need, in order to distinguish them, only to refer to the formal differences, differences of shape or function. "Formal" must be understood as the antithesis of "material"; it is now a technical term, and no longer restricted to "shape". We cannot write for "formal" the word "predicative", however, since we can have material differences which can be indicated by "x is bronze", "y is silver"; only if there is a single matter does "matter" become meaningless as a predicate, since then it differentiates

nothing from anything else. What Aristotle insists on is that matter, shape, function, are all involved in the being of a particular thing. We must keep the functional essence in mind because what we mean by certain words is a thing with a function, and while a form and a matter are required, there are many forms and many matters which can go along with a specific function. Compare the case of the knives above.

Almost all our social and political terms for things are "functional" - father, friend, teacher, politician, guardian, ruler, etc. But note the further points of interest: of each of these, and many other, terms we can proffer as an analysis "if x is a y (father etc.) x is a man", though in no case can we say "if x is a man x is a y". The functional essence emerges from "x is a man who acts so", "x is a man who is related so", and in each case the "form" depends upon there being a distinguishable thing capable of acting and being related. Whether it is an act or a relation in question, meaning depends upon there being a distinguishable man who is agent of the act or one term of the relation, and that the man so acts or is so related is logically contingent. "Necessity" appears in the logical statements that every act has a specific agent, every relation is a relation of (at least) two things. But if the terms are not analysed, we have a series of direct entailments - "if x is a father he has a child", "if x is a cousin, x has a cousin".

though what we mean by "round" can be expressed as "a shape".

I have already indicated that these features of discourse are the source of some of Descartes' "necessary truths"; but for an Aristotelian the meaning of the necessary "truths" derives from the meaning of the contingent "truths". Only if we are familiar with a particular kind of thing which acts in a particular way is there for us anything to which the correlative agent-name can be attached; and it is this which provides the necessity in "if there is going on an act y, there must be some thing doing y". The logical parallel to "x thinks" is "x moves", not "x is extended"; the last functions as an answer: if x moves, x is extended, i.e. x is a body which moves. The question of what matter in the stuff sense can only be asked, in connection with an act, of the thing which acts, or, in connection with a relation, of the things which are related.

(c) Any terminology presents certain difficulties because the matter, the form and the function are necessarily related to the thing, and we speak both of the thing having a form and the matter having a form, though only of the thing as having a function. Speaking in the material or factual, as distinct from the logical, mode, we change the expressions only in part. We say that a knife is made of steel, not that it has steel; we are uneasy saying the thing is matter, but we say that the knife is steel. We say that a ball has shape, not that it has "round" or even has "roundness", though what we mean by "round" can be expressed as "a shape".

1. If the question is, "What is the matter of the knife?"

The distinctions here are obviously valid in ordinary speech, but they demand further attention before we can say that they are logically important or what their logical import is.

Aristotle suggests in the final section of the Categories¹ that the verb "to have" was already a source of difficulty to Greek logicians, and already the source of confusion.

What suggests itself immediately is that "x has a shape" is equivalent to "x is round or square or angular or.....", where the complete disjunction would include all possible shapes, and that "has" indicates a formal and not a factual mode of expression. If we do not insist on a distinction between "attribute", "mode", "quality", "act", "affection" etc., but use "attribute" as a genus term for all predicates, we could indicate that we were speaking formally by the use of "has", e.g. "every substance has attributes" would be a logical statement about statements which can be made. Its meaning would be exhibited impartially by "roses are red", "elephants are mammals", "particles are triangular".

What we should have to argue is that (a) the use of "have" as a substitute for "is" at the fact level is mistaken, and (b) there can be no meaningful statement which combines the two modes by making "substance" the subject and asserting of it, after either "is" or "has", a particular attribute. If the argument holds, then "necessity" is confined to "if this can be called an act, there must be an agent, whatever the agent is; if this can be called an attribute, there must

1. If the section is spurious, the point is genuine.

be a substance, whatever the substance is", i.e. something which can be called a substance because it can be the subject of a statement "this thing so acts", "this thing is such".

If we convert "every substance has attributes" into a class-relation statement, so that we can say "there are substances" and "there are attributes", we may have difficulties developing a logic or arguments, but we can still at least recognise familiar fact assertions as meaningful. But if we treat "attributes" as a class term and refuse to do the same with "substance", we refuse to accept as meaningful any of our commonplace nouns. What I have tried to show above is that Descartes, beginning by making "thing-substance" the only noun, is forced to move to "there are minds and there are bodies", and to treat minds and bodies as the subjects of statements. But his first significant statement is actually "extended substances move". "Thinking, therefore a thinking substance" produces a necessarily true "there is a thinking substance" which is not an existential claim, not a fact statement, but belongs to the twilight metaphysical region of truths whose subjects are terms in logic and whose predicates are terms in fact-statements.

The general proposition we can assert, granted that we are talking in familiar terms of the many things which we are concerned with in experience, is that while what a thing does is possible because it is a substance with a particular form (shape, structure), the function is of the thing, and not

of its form or of its matter. The ball, we say, bounces; it bounces because it is made of rubber (and rubber always bounces? But when we speak in this way, "rubber" means "rubber things", "rubber in any shape", anything "made of rubber", not "rubber in general").

(3) Potentiality

(a) Different substances are suitable for being made into, or for becoming, certain things, other can never be made into or become such things. In something the same way, things that are suitable for doing certain things are not always being used for the purpose they can fulfil, while others cannot fulfil that purpose. These are matters of fact: bronze is made into knives, ore into bronze, but some bronze is made into statues, some ore is not treated at all, and knives made from bronze are sometimes being used and sometimes not being used.

Aristotle would use the term "potentiality" of bronze, ore and knife to indicate that bronze can become knives, ore can become bronze, and knives are actual cutting tools in use or tools which can be used for cutting though not in use. In each case, the statement would be, in full, "x is potentially y". There is nothing esoteric or difficult about the doctrine, and until we see why it had to be put forward it seems trivial. Consider Descartes' "necessary" thinking substance, derived from "I think" (where "I" is distinguishable from "you" or anyone else in a variety of ways if "I" is

used in ordinary fashion), and shown by means of "essences" to be necessarily always thinking; if we accept the doctrine of potentiality, we should expect Descartes, if he has really demonstrated that there is a thing or substance which thinks, to be able to indicate or to describe the thing in question and to make a further series of statements about the sorts of acts it was capable of performing, unless "thinking" is a single kind of act that goes on without change or interruption.

"But it has to be noted that, while indeed we are always in actuality conscious of acts or operations of mind, that is not the case with the faculties or powers of mind, except potentially. So that when we dispose ourselves to the exercise of any faculty, if the faculty reside in us, we are immediately actually conscious of it; and hence we can deny that it exists in the mind, if we can form no consciousness of it".

Descartes is replying to Arnauld's criticism, that if the mind is the self in so far as it is a thinking thing distinct from body, there must be much in the mind of which the mind is not conscious. But to Descartes

"that nothing can exist in the mind, in so far as it is a thinking thing, of which it is not conscious, seems to me self-evident, because we conceive nothing to exist in it, viewed in this light, that is not thought, and something dependent on thought; for other wise it would not belong to the mind, in so far as it is a thinking thing. But there can exist in us no thought of which, at the very moment that it is present in us, we are not conscious. Wherefore I have no doubt that the mind begins to think at the same time as it is infused in the body of an infant, and is at the same time conscious of its own thought, though afterwards it does not remember that, because the specific forms of these thoughts do not live in the memory".¹

1. Reply to Obj.IV. H. and R. II. p.115.

Then follows the paragraph first quoted. If Descartes is to stick literally to "nothing is in the mind of which it is not conscious" a complete description of "mind" when it is aware of p is " p ". It is almost hopeless trying intelligibly to state what is involved.

Descartes simply must use pronouns in talking of minds and mental acts and operations. When I was reading the Gassendi objection all that I was aware of, all that I had in mind, was the sentence I was reading, or what the sentence "said", what Gassendi meant. I was aware of p , and if p is what was in mind, I was aware of what was in mind. But I was aware neither of myself nor my mind. It is surely impossible to sunder "I" and "mind" so completely that we can say "I was not aware that I was ~~aware~~ that p , or that my mind was aware that p , but my mind was aware both of p and that it was aware of p ". What the sundering demands (and what demands the sundering) is "I am aware of p and p is not out there in the world so p is in mind"; I am aware of what is in my mind, and "mind" is a location or collection of ideas, and not a thinking thing, a conscious thing, but an object of consciousness, that of which I am (time by time) aware. If we surrender the "mind" talk altogether, and simply use "I", we can state clearly what is the concern.

Whenever I think, I think of something. I see, perceive, imagine, conceive, judge, doubt and deny, will and wonder, etc. One of these I will always, if I am thinking, be doing, and this means that at that time I will not be doing any of the

others, although I have the power to do them, i.e. I can at a later time perform these operations. That I so operate, that I can so operate, I can discover only after so operating. "Imagining" has to occur and be noted, discriminated from seeing, before I can say that I imagine or that I can imagine.

The only account I can give of myself as a thinking thing, i.e. an account which mentions nothing else but thinking, is in terms of actual performances of operations which I remember, and, if I am not concerned with history, the corresponding "power" statements which convert "did do" into "am able to do". If I write "thinking substance" or "mind" for "I", then no changes are required. The account is exactly the same - and we could write "it" for "I" quite as readily. We could also write "a man". In other words, while there may be disagreement as to whether I am a man, a spirit, a mind, a thinking thing's account of its thinking will be compatible with any of the alternative theses about what I am.

Further, whichever "substance" the account is of, the objects of thought present the same problem, in that they not only "appear" but "reappear". Whatever "is aware", the sense in which p is in mind when we remember p is different from the sense in which p is in mind when we forget p and cannot perhaps remember it or are simply not remembering it, although we can perhaps remember it later. If we take seriously the doctrine that "ideas" are things in mind, then either we have to distinguish between a sense in which they are potentially in mind in contrast with being actually in mind, or treat them

as always in mind and sometimes looked at or "known" by the "self" who looks, in Lockean fashion, into the mind.

In the final paragraph (which I quoted first) the whole sense is presented with pronouns. The meaning is clear enough; we know that we are sensing, imagining, conceiving, remembering etc. when we are actually sensing, imagining, conceiving, remembering etc. Thus we know that we have the power to do these things, as we could not know it before we had done them and distinguished them. Treated as universal, the first statement is in fact false, i.e. we do not always know that we are sensing etc. when we are sensing etc. We have to add "sometimes", recognising that sometimes we are totally unaware of what we are doing, and sometimes completely wrong in our judgment of what we are doing - we think that we are sensing when we are imagining, remembering when we are inventing, inventing when we are remembering and the like. And the conclusion, "hence we can deny that it exists in the mind, if we can form no consciousness of it" either does not follow or says only what was said before, i.e. we can deny that we are aware of, have noticed, an act which would entitle us to talk of a power we have, "in mind" being equivalent to "aware of".

And having noted what is involved here, we can also note that the previous paragraph also depends on pronouns: it is "we" who dispose ourselves to the exercise of any faculty, in the last, and it is "we" who cannot fail to be conscious of any

thought in us at the moment that it is present in us, in the first. But what is the sense of "thought"? p, or sensing, imagining, remembering p? If it is p, as is suggested by the impossibility of any act being other than present in us when it is being performed, and anywhere else at any other time, we may feel it necessary to treat p as actually in mind all the time and potentially "in consciousness" at all times when it is not actually being thought, i.e. is "in mind" as being "minded" by a thinking substance which is not the mind.

The account of the thinking thing, if nothing is included in the account except "thinking", will at any moment be "is a persisting thing which is actually thinking that p and has the power to sense, imagine, conceive etc., powers which are not at the moment actualised." I shall show later that this is roughly the Aristotelian account, except that Aristotle maintains it to be meaningless to assert either acts or powers of nothing, and he asserts them of a continuing and developing human being. He also asserts a sub-division of mental-acts and powers to be acts and powers of animals other than men. Descartes prefers pronouns, and avoids talking directly of men.

(b) Only because things are at a time something with form and matter can we talk of them as potentially something else at that time. "Potentiality" applies to things of a kind as they actually are, and it is nonsense to call a thing a potential actor or agent if it is actually acting.

If we make two moves, we may seem to get a form without a matter, a matter without a form. Bronze is potentially a knife, but it can be actualised only when a workman acts on it and gives it a form; the matter seems to precede the form which is only potential, or which it is only potentially, a form only in a mind. But the actualising agent is himself actual at the time of "imposing the form", and the bronze had some form prior to the imposition, just as the ore which became the bronze in its turn had a form. No matter how far back we trace the historical processes, we have formed matters: but if we consider the bronze and the workman who is about to work on the bronze, the form which the bronze is to have is only an "idea", part of the purpose of the craftsman, a future state of the substance.

Aristotle takes it for granted that this is a familiar and intelligible situation, just as Descartes takes it for granted that we all know what "thinking" is. In such a situation "purpose", "intention", "knowledge", "skill", "desire", are intelligible, since we are presented with the sort of situation which gives rise to their use. The question that I want to raise, however, is not of what more needs to be said or can be said of this situation, but of the difference between the case of the craftsman and the case of a plant. The plant develops without the actualising activity of a craftsman with his purpose. A seedling is potentially a blossoming plant, a plant is potentially a reproducer of its

species these are two ways of formulating facts which we learn and which are important to us, that seedlings do become blossoming plants, do seed and the seeds do become plants, and plants of the same kind as the plants which produced the seeds.

But even here something is needed for the actualisation, namely food and a set of environmental conditions. So with babies becoming men, or even with boys becoming philosophers; something outside is needed, something actual, nourishment and care and instruction, food, clothing, and an instructor.

The importance of this sort of argument is first that it re-asserts becoming as a scientific "category", a valid concept, in a philosophical background which had rejected becoming as "unreal" or had discovered that it was unaccountable except as the result of an utterly unintelligible "force" or "principle" acting on what was incapable of alteration. But second, it solves a logical puzzle without recourse to metaphysical entities, since we can now say that being a babe now and a man at a later stage is precisely what is meant by the term "a human being". We do not need an unchanging material sub-stratum to which an attribute is attached at one moment and not attached at another in order to explain that the thing with and the thing without are the same thing.

And thirdly, instead of confining philosophy and science to explanation by means of the concepts of unchanging matters and principles, or unchanging forms and their aggregations,

these concepts are elaborated and expanded. The form which a thing has enables it to be contrasted and compared with other things, and so classifications are possible; the doctrine of a variety of matters correlated with a variety of forms makes it possible for there to be an empirical investigation of the matters, i.e. of their constituents and structure as revealed by dissection and inspection - we are allowed to break the eggs, and Darwin and Harvey bear witness to the efficacy with which Aristotle the scientist broke eggs. The development which a thing reveals is not incompatible with the matter-form doctrine, nor is it a substitute for it; and the development doctrine itself leads on to the notion of interaction, of causal relation in which two or more things different in kind are concerned. And as with the development, so with the causal doctrine; the latter does not replace the former, but supplements it, and as a result we get a glimpse of the expanding series of philosophical concepts, each of which suggests a particular science and each of which draws attention to the artificiality of insisting on one of them as the pattern for the Ultimate Reality.

(c) Aristotle takes it for granted that there is a very great number of different kinds of things, all of which exist, can be classified, and can be studied. He accepts the distinction between living things and non-living things, and that with this goes the recognition of complex differences

is easy enough to see. As well, there are difficulties. The criteria for being alive are in part behavioural; and there may be acute difficulties in determining whether a thing is now alive or dead as there may be difficulties for a scientist in deciding whether a discovered thing can be classed with "living things". Nevertheless our distinctions between "living" and "dead" and "neither" are clear enough in the case of animals and plants and sand piles, and the scientist's difficulties are not such as to present the Socratic-Cartesian challenge "What is Life?", with the assumption that if we cannot answer, the word is meaningless.

The demand here is for definition or explanation by reducing a concept to other concepts, and hence a Cartesian riddle: a concept is meaningless unless it can be reduced, and superfluous if it can have other concepts substituted for it. The argument of the Regulae is that there must be irreducible concepts if there is to be thinking at all, but the concealed claim is that all concepts other than those Descartes calls simple are either invalid or shorthand terms for complexities of other concepts. As I stressed, nowhere in Descartes do we find a serious attempt to justify concepts or their rejection by reduction to simples; but if a concept like "life" cannot be reduced, then all the argument permits is that it be accepted as a simple and necessary concept. The method can, at best, show only reducibility or irreducibility. Proof of meaninglessness demands a demonstration that science - and not just physics or soul-ology - can, without loss or use of equivalents, get

on without it. That work after work of Descartes stops just when the question of the "nature" of organisms is to be explained to us, when we get beyond statues and windmills and fountains, has again its significance.

Aristotle, on the other hand, treating concepts as (in part) classificatory, can indicate the class divisions which the concept demands, and is able to note that along with the classification goes the empirical discovery of organic structure, specific forms of relation, and specific forms and variants of forms of behaviour. Not having reduced animals and plants to particles or extensions in motion, Aristotle can simply talk about them and study them, without the need to posit a substance-soul which "explains" all the non-physical features of these things. He is not, for the same reason, bound to deny that animals can perceive, feel, and desire.

The psychic "powers", which are spoken of as belonging to organisms, and in relation to ways in which organisms act (and inorganic things do not act) in a complex environment, always involve (a) an organism of a particular kind, and (b) certain actualising conditions before the power is exercised, i.e. the act in question occurs.

Being nourished demands food (and stones lack the power to nourish or to be nourished); seeing demands an object that can be seen; imagining demands something imagined; thought demands a different type of object. Questions asked

and some of which were "thought" but not "thinkers".

about "seeing" may be answered by reference (a) to the kind of thing seen, (b) to the kinds of thing that can be seen, and (c) the condition of the occurrence of a "seeing" or any "seeing". We have, in other words, to study the thing which sees, including his visual organs, the thing looked at, and the medium which makes seeing possible; what is demanded is research and reflective consideration, and the difficulties are indicated in a fairly lengthy general discussion in the De Anima of the particular powers and their exercisings. The survey contrasts markedly with the Cartesian reductio ad negationem of sensing.

Reasoning, and the higher powers of thought, raise acute problems, and we can see already part of the reason. There is lacking here the obvious relation between the senser and the thing sensed, i.e. the independent actualising thing whose presence "occasions" the sensory awareness. What Aristotle seems to maintain, however, is that it is the man who has the powers, the same man who senses and imagines and reasons and does metaphysics. What I have claimed above is that this is the conditions of there being a problem of "relating" the objects of the various activities, what is sensed, what is imagined, what is thought; the condition of there being a problem of relating metaphysics, science and the familiar world; and Aristotle shows no signs of doubting that there was a familiar world, containing things of many kinds, some of whom were, in Descartes' generic sense, thinkers and some of whom and which were "thought" but not "thinkers".

(4) The Role of Different Sciences.

If we claim that the objects of different sciences are independent of one another, we are denying that familiar world things are what sciences study. In the De Anima (403a-403b) Aristotle gives two examples - anger and a house - to illustrate the way in which the same sort of situation or occurrence can belong to different sciences, and this is vital to his metaphysical thesis that "substance" means "individual thing".

Since I am to be closely concerned with the first, I shall here refer only to the second, developing and exaggerating Aristotle's example. A student of functional design studies shapes of houses in relation to human needs, an historian studies the development of houses, a geographer the relation between houses and different human situations, the economist studies demand for houses and price fluctuation, the architect studies principles of construction, while the industrial physicist studies the material - wood and its potentialities as a building material, steel and its characteristics, stone and its durability.

To each of them a house is a different kind of thing, yet after all each is concerned with the same houses. The houses, in a sense, are independent of any of these sciences; but they are not independent of the truths which the sciences determine - there are not "just houses" before we begin to think, to ask questions and find answers. The study of matter is study of matter with form, formed-matter which is patterned or to

of the real "things" in the world. The extended forms that

be patterned into a form. Each science is concerned with features inseparable from things, and not even separable in thought from things. Each of the sciences could be called "abstract" in a sense fairly familiar to us, in that they deal with aspects of things while yet the aspects are not independent of the things - they deal with a selected set of propositions which are true and in which the thing in question is a term, and exclude others: physics includes "x is extended", excludes "x costs £1000".

Physics is interested only in extended things, economics in things with a value, architects in the design of things which fulfil human needs in a particular way, but the same familiar things may be the subjects of study of any combination of the sciences. What is denied is the "simplicity" of things as against the complexity of science, and the sundering of science from things.

There is, Aristotle also recognises, a special science, namely mathematics, which deals with "attributes" separable by abstraction from particular kinds of things (or bodies) - and this seems clear enough in the case of geometry, which does not depend upon any material things having the particular geometric forms, while yet all bodily things have the extension which is the basic concept of geometry. He could agree with Descartes that all bodies are extended, but the very fact that geometry can work with only regular figures would for him be obviously an argument against a mathematical interpretation of the real "things" in the world. The extended forms that

"substances" have are irregular, although the imposition of regular forms may be the human endeavour.

There is another science, First Philosophy or Metaphysics (as it was later called) which deals with attributes separable in fact and in thought from any particular kind of body. There is room for a variety of interpretations of the final "science". I suggest as a possibility that it means the study of the general attributes of anything whatever, qua thing and irrespective of its kind. It cannot refer to a special study of "soul", if "soul" is connected with anger and fear and the like, since these Aristotle declares in the following sentence in the De Anima to be inseparable from the physical matter of the bodies to which they belong. "Anger" and "body" are separable only as the subjects of two sciences; their union is clear, and psychology is an empirical science, a part of natural philosophy, if it is concerned with such phenomena as fear and anger, and, as we will see, with most of what we call "mental occurrences".

"First Philosophy" may be concerned with nous as a separate, incorporeal substance, and this is argued by some - its resemblance to Cartesian doctrine would then be plain. But of this I am extremely doubtful - even the celestial "intelligences" do not seem to be "separable" from the celestial bodies, and I am not satisfied that Aristotle's God is a Thing in any way independent of the universe. There is only this to be said for setting down in such

a summary form the statements as to the nature of mathematics and first philosophy, that we realise how difficult it is to find a meaning in what is said. Aristotle may seem at times in the Physics and in the Metaphysics to be concerned with arguments involving only necessary truths, but in general it is obvious that he is concerned with problems that arise from accepted and complex facts. It is these that are the foundation of his rejection of the philosophy of his predecessors, and it is with empirical (observable) facts that he begins, not with "conceptions" of a mind or soul or self, and of God, which are "immediately given". It is facts of the familiar world, where we have criteria for determining whether what is said is meaningful and true or false, which determine whether "principles" are justifiable or adequate.

Rather than look for odd quotations to endorse what I have said about Aristotelian doctrine, and especially what I have implied, that the terms "substance", "matter", "form", "potentiality", "actuality", are logical or formal, and not material, i.e. are not names for "things", I shall endeavour to show how what has been said and implied applies directly to the De Anima. I summarise what has been said of "thing" and "substance" before turning to the new topic.

(5) Thing and Substance

It was assumed that our ordinary language nouns were meaningful, and that distinctions which those nouns imply

are distinctions which we can justify in a variety of ways. Eight criteria were distinguished for "substance", and with the exception of (d) - "the same substance can exist in many places and forms at the same time", and (g) "the simplicity of substance contrasts with the complexity of compounds, not with the complexity of features possessed by things", the criteria apply to things as well as they do substances. Of (d) it may be said that if we write "things" or "kind of thing" for "substance" in "the same substance", the criterion holds for both, and it is at least a dubious matter whether, for example, we call "carbon" a thing or a substance. And (g), when examined carefully, seems rather to stress the similarity of thing and substance, since the substances in a compound, when specified, have like things and the compound, a variety of features.

The thing-substance distinction seems to hold, in fact, only when the two terms appear in an expression of the form "x is made of y", where what is asserted is that a thing of a determinable kind is made of a substance of a determinable kind. Even the homogeneity of "substance" in this case is qualitative or functional, and is illustrated best by the facility with which we turn substance-nouns into substance-adjectives, often without a change of form, or into prepositional phrases. This is a cotton dress, that is a brick house, there is a frame of steel.

Here is a question of the same thing being all three.

But, as I have already shown without express intention initially, we tend rather to use "matter", "material", or "stuff", rather than "substance" when we are contrasting form and function with the constituent "body" of a thing, and as the adjective-tendency shows, the homogeneity stress is largely predicative (answering the question "What kind?") and not - the grammatical term being significant - "substantive" or "substantival". Subject and predicate in a sense contrasts with matter and form, but the contrast is neither precise nor consistent.

Now predicates we take, too easily and uncritically, to be simple and obviously distinct from one another because each has its "simple" meaning. "Red" and "round" and "heavy" are attributes we would never confuse, but their simplicity is not so apparent when we use them in classifying and comparing things; and without that use it is difficult to give them any meaning at all. "Wooden" and "brick" and "steel" lack the apparent simplicity of "red" and "round" and "heavy", although they too are never confused as attributes, and they too function in comparing and classifying. They are much more "substantial", but their function is the same so far as use in statements is concerned. The way in which we determine whether or not attributes are exclusive indicates this to some extent: "x is round" does not imply "x is heavy" or "x is red", but the three are compatible, and "compatible" here is a question of the same thing being all three. We

can begin to decide by starting with red things and seeing if they are red and roundwe can begin with any class, in other words, and if we could not begin with a class, if there were no round things, red things or heavy things, the terms would be meaningless.

We do not show much interest in these types of classification, since they do not serve our purposes directly, though indirectly we find ourselves continually subdividing established and named classes in all our dealings with things by distinguishing the red, the heavy and the round. "x is wooden" implies "x is not brick", "x is not steel", but x may be round or red or heavy. I tried to argue above that it was plausible to claim that if we had no senses we could never know anything at all, but that this argument does not lead to the conclusion either that we "know" only "sensations" or that our only criteria for things are sensible qualities, however important they may be. Descriptions of the visual features of comparatively simple things we find impossible to give when confronted with the things; and we get "results" by talking as little children draw, using "green" as they colour trees and lawns with one green chalk, whichever "green" happens to be handy. When our talk fails to "match" we elaborate it, and are forced to refer to objects with the colour, the green, the variety of greens, in question. If there are "sensations" of green, we have only class names for them; and if there are green things which we sense, we have

only class names for them.

It is when we find odd examples, of a snooker ball which is called "the green", of portions of a golf course called "greens", and realise that it is quite intelligible to say "the green goes there", "greens are not always square", that we realise how predicates can function as subjects, just as subject-thing terms function as predicates. This need not be laboured in the case of sensible qualities, but it must be laboured in the case of "sensible things". The predicate "animal" is simple enough as a predicate, but in order to explain its "meaning" we have to make use of statements like "animals are...." (A dictionary will, as likely as not, give an Aristotelian definition, which clearly few users of the term have ever "conceived" - e.g. "an organised being, having life and sensation and voluntary motion; it is distinguished from a plant, which has organisation and life, but not sensation or voluntary motion; the name sometimes implies the absence of the higher faculties peculiar to man").

In the case of "animals", few users of the term are at all familiar with what animals are "made of"; in the case of "brick" there is a greater familiarity, and when "brick" is used in "this house is brick" there is a very great familiarity, with the material or stuff concerned. But "familiarity" is of no special importance; what is important is that the question "of what stuff?" can be asked of any thing, and can be asked in a variety of forms.

What, if we accept general discourse as meaningful, can be said of any thing?

(a) That it exists somewhere and somewhen. (This is Descartes' "primary condition of a substance, i.e. (Ex). Essence is not substance until it exists).

(b) That many statements can be made with it as subject. (The more attributes we know a thing to have, the better we know the thing - this is Descartes' equivalent).

(c) That it is different from other things, which belong to the same or other classes. (It must be conceived as distinct from and as existing independently of other things).

(d) That it belongs to a number of classes, and if it is familiarly named thing, it will seem to the unphilosophical that it belongs to one class, or to two classes. "Pedro", the child knows, is obviously a cat; perhaps it is obvious to the child that it is an animal. Relating it to a third class is somewhat difficult, because few know to what class "animals" belong, yet they accept vaguely the biologist's determinate classification. The philosophically interesting point is that Pedro belongs to as many classes as the statement beginning with "Pedro is" has predicate completions, and only if there are many different kinds of thing and a non-logical principle of classification do we get classificatory systems which are determinate. (Only then does it make sense to talk of summa genera, as Descartes speaks of minds and bodies as summa genera).

- (e) That it is spatio-temporally and otherwise related to other existing things. (Descartes' "conceiving as existing independently" is "conceiving as independently related").
- (f) That it will show an inner complexity which is a possible field of study for scientists, or perhaps a "usable stuff" for those whose interests are instrumental. (Descartes asserts this of all gross bodies; and the "particles" are as much the stuff of structure as of use in gross bodies. It is true that he claims "minds" to be simples, but unless "ideas" are to be completely separable from minds, then the minds that exist are complex).
- (g) That statements about its structure may serve as explanations of its behaviour. (This is true of Descartes' gross bodies and of the thinking minds do).
- (h) That it will act, or react, in a limited variety of ways in common with other members of its class (if the classification is determinate and names established); that it will act, or react, differently from other members of its own class, and differently from members of other classes, under different circumstances or conditions. (This does not seem to apply to minds and bodies for Descartes, since the latter can only move and the former only think - but it is true of gross bodies that they behave differently, and minds both think differently and are acted on by bodies in ways in which bodies cannot act on bodies).
- (i) That it will be in different conditions at different

times, and will not be acting in all the ways in which it can act all the time, although at any time it is the sort of thing that can act or react in ways characteristic of its class. What ways and what conditions are related can be stated generally but must be determined empirically.

(j) That once it has been determined to be of a particular kind, in relation to other kinds already classified precisely by sciences or imprecisely by convention and use, certain other statements can be made of it which are necessarily true. These statements will include assertions of membership of certain classes and assertions of non-membership of certain classes.

(k) That it can be a term in an indefinite number of relation statements of different kinds.

(l) That it is universal in the sense that it is a "kind" and individual or particular in the sense that it is of a kind, is what it is where and when it is, and while it is. And if commonly named things were not both universal and particular or individual, there would be no meaning to the subject or predicate terms of our discourse.

(m) That as a persistent thing it may exhibit development in a regular pattern of phases which are evidenced by changes of appearance, behaviour or structure, without thereby ceasing to be the thing of a kind that it is; and the changes which the phases represent may be "essential" to the thing persisting as the kind of thing it is. This is a feature of all organisms.

.....

For a detailed consideration of Descartes' complex treatment of "substance", and a collection of the many statements which he makes, I recommend Jean Laporte's Le Rationalisme de Descartes, especially the chapter on "Les Limites de la Connaissance Rationnelle". But what is important here is that the series of statements which I have made above can be instanced from our use of common nouns in ordinary discourse, and any common noun can appear in a fact statement.

Those nouns we can regard, if we like, as names of the things and the only things which constitute our familiar world. The skeletonic logical structure presented above is in a sense the logical or metaphysical structure of any thing that we familiarly encounter; it represents what we "mean" by the phrase "a thing", or what everyone assumes to be the meaning of "a thing", what they take for granted as the meaning of the word "thing" although they probably never have made any attempt to formulate the "meaning".

That they take it for granted is illustrated by the way in which, having the "natural light" only for a guide, they reject such statements as "x is a thing but it is not a kind of thing", "x is a thing but it is not near or distant from any other thing", "x is a thing but it never affects other things or is affected by other things", "if x is a thing then it never changes". It is illustrated by the way in which they consult doctors and watchmakers and mechanics, dieticians and veterinary surgeons and gardeners, explain irregularities

in behaviour by things going wrong inside, or things going wrong outside, the thing whose behaviour changes.

A classificatory system also shows in its own way a certain structure of the world, and it expands into the familiar world with the location and description of the things classified, with statements of their qualities and relations and behaviours. So the skeletonic logical structure of "thing" expands into the "real world" by the expansion of the logical terms into the language in which things are named and the relations, structures and activities stated.

There is no sense in which we can talk of the logical or metaphysical structure of the world as the real structure and distinct from other structures which, by implication, are unreal. There is no sense in which we can get closer to Real Being or Substance by logical or metaphysical analysis. There is no logical or metaphysical reason why we should surrender the common-sense restriction of "exists" or "came into being" or "ceased to be" or "was born" or "died" to things which are nameable and individual nameables. We are not in so refusing to surrender a use declaring that qualities and relations and activities are "unreal" or that they do not "exist"; nor are we declaring that things exist independently of their qualities and activities and relations, since the things we declare to exist are the things we declare to be qualified and related and to act and to be acted upon....

I am not concerned with exhausting a list of the category

questions or statements. What it seems we are trying to do in declaring the logico-metaphysical structure account to be an independent account is to describe the world in a way different from that which our language fashioned itself historically to make possible - while we have no language for the purpose and having no idea of what we want to say. The latter privation seems to be entailed by the first. The core of the puzzle seems to lie somehow in our wanting to give a meaning to "the world" or to the "unity" of the world, the "world" not being complicated by masses of assorted and irrationally located rabbits and mountains and fevers and intestines, not complicated by the illimitable facts of observation or the systematisations of astronomers, geographers, anthropologists, anatomists, geologists..... and the rest of the members of the class "scientists".

Doubtless scientists seem to want to do something like this, too; but we want also to maintain a sense in which we declare that what men in general, and those scientists who speak truly, say truly is true, and that what is truly stated to be such and so and in such places exists.

Those who give the logical structure account and declare it to be what really is are remarkably like people who have misread the logical statements as fact statements; who, like Mill,¹ read an Aristotelian list of categories and regard them as a list of "beings". They are unlike those

1. Mill, Ross..... and their readers.

who suppose possible worlds by denying a category or asserting one category only, thus removing from Reality a class of statements or insisting that Reality is exhaustively described by one class of statements. I have already suggested here that the insistence on subject-predicate statements is neutral, in that it indicates the whole class of statements which can be true or false. The category denials occur with subdivisions of this class.

6. I have twice above made mention of Arnauld in connection with categories; and his brief discussion enables me to illustrate how Descartes is guilty of both confusions.

In Part I, Chapter I, of his Art de Penser (The Port Royal Logic) Arnauld has discussed "the relation of ideas to their objects", and in Chapter III he discusses briefly the "ten categories of Aristotle". I simply translate.

"To this consideration of ideas according to their objects we can relate the ten categories of Aristotle, since they are only different classes to which this philosopher wanted to reduce all the objects of our thought, grouping together all substances in the first class, and all the accidents under the nine others. Here they are:

(1) Substance, which is either spiritual, corporeal, etc..

(2) Quantity, which is called discrete when the parts are not bound together, as in number, continuous when they are bound, and then it is either successive, like time, like movement, or permanent, which is otherwise called space, or extension in length, width or depth; length alone making lines, length and width surfaces, and the three together solids.

- (3) Quality, of which Aristotle has four species:
 The first includes the habits (les habitudes), i.e. dispositions of the mind or of the body, which are acquired by repetition of acts, like the sciences, virtues, skills in painting, writing or dancing.
 The second includes the natural powers, such as the faculties of the soul or of the body, the understanding, will, memory, the five senses, the power of walking.
 The third includes the sensible qualities, like hardness, softness, weight, cold, heat, colours, sounds, odours, the different tastes.
 The fourth includes form and figure which is the external denomination of quantity, as being round, square, spherical or cubic.
- (4) Relation, or the relation (rapport) of any one thing to any other, like father, son, master, servant, king, subject; of power to its object, of sight to what is visible; and anything that indicates comparison, like equal, greater, smaller.
- (5) Action, either in itself, like walking, dancing, knowing (connaître), loving; or beyond itself, like striking, cutting, breaking, lighting, warming.
- (6) Passion (pâtir), being beaten, broken, lit, warmed.

(The remaining four I shall only list: Where, When, Situation - being seated, standing, lying, before, behind, right and left of - and Having).

These are the ten categories of Aristotle of which such a mystery is made: although, to tell the truth, it is a matter of extremely small use in itself; it scarcely serves at all to form our judgment, which is the goal of all genuine logic, and very often it is extremely harmful for two reasons that it is important to note.

The first is that people regard the categories as something established on a basis of reason and truth, instead of something quite arbitrary, having its source only in the imagination of a man who has no authority to prescribe a law to other men; they have as much right to arrange the objects of their thought in another way, each according to his method of philosophising. And indeed, there are some who have understood this couplet as containing everything which a new philosophy presents to the world.

Mens, mensura, quies, motus, postura, figura,
Sunt cum materia cunctarum exordia rerum.

In other words, these people have persuaded themselves that the reason for everything in nature can be given by considering on these seven things or modes:

- (1) Mens, l'esprit or thinking substance.
- (2) Materia, body, or extended substance.
- (3) Mensura, the greatness or smallness of each part of matter.
- (4) Postura, the position of one with regard to the other.
- (5) Figura, their shape.
- (6) Motus, their movement.
- (7) Quies, their rest or least movement.

The second reason which makes the study of the categories dangerous is that it gets them into the habit of giving words for cash value (*à se payer des mots*), into imagining that they know everything, when they know only a set of arbitrarily selected names which form no clear and distinct ideas in the mind, as we will see in another place.

.....

My comments will be brief. The account of the categories is largely a travesty of Aristotle, directly because no consideration is given to the subject-predicate distinction which even Descartes recognises as a "distinction of reason" and not "a real distinction". Hence Aristotle is presented as classifying things under the guise of "objects of thought", which are both things of a special kind and distinct from the "ideas" whose objects they are. And no attention at all is paid to what Aristotle says directly and indirectly and at length about dispositions, actuality and potentiality, especially in relation to "knowing". This we cannot simply let pass, as we

can minor confusions, on the ground that Arnauld wrote the volume in something less than a week. But even more striking and more serious is that no indication whatever is given of the central thesis that substances are individual things, illustrated time and again by particular persons and animals which cannot, qua individuals, be predicated of any thing at all.

The logical distinction of subject and predicate, and the logical doctrine of the role of individual things in propositions, makes it quite impossible to say that any one individual and any other individual are differently substances. But as soon as the distinction of "spiritual" and "material" is added, we have made a distinction of kind or quality, and are making a fact claim as to the classes of individuals, a claim which is remote from the logical considerations. Arnauld adds "etc."; Descartes does not. The division of individuals into these two classes is completely unAristotelian and so, at times, Descartes understood Aristotle and attacked him, especially for confusing the account of the human soul - and Aristotle's account of "soul" will concern us in the next chapter.

Arnauld's illustrations show clearly that he is considering all the categories except substance, as Aristotle did, within the framework of a developed and non-technical language. Substance, however, he considers only from the point of view of commonly accepted metaphysical beliefs about souls and bodies - what "all philosophers and most men" are agreed about, as Descartes claims in replying to Hobbes. Descartes'

major arguments, which depend upon and illustrate the role of the natural light, are regularly conducted purely in terms of the technical "substance" and "attribute", and these arguments must have appeared completely vacuous if he had not immediately included non-technical and ordinary language terms. But the terms which he so admits are predicate or attribute terms, and the metaphysical statements preserve the technical term "substance" as the subject of all statements (at least so long as it suits Descartes to do so). All "substances" are unknowable, all subjects of propositions are unknowable, because every proposition is a bastard combination of a technical term as subject and an ordinary discourse term as predicate.

These are Descartes' metaphysical propositions, and they derive their necessity from categorial propositions and their meaning from the intelligible predicates. They are Descartes' only metaphysical propositions. Once the disjunction of minds and bodies is stated to be inclusive of all things, we have a fact claim that there are in the world only things called minds and things called bodies, and fact-claims as to what they are and what they do and what is done to them - the fact claims being odd in that most of them are meaningless to the minds which alone can assert them. The statements "come under the categories", but only as all statements come under the categories. The truth or falsity of any statements is non-categorial, while their logical relations are the logical relations which must be determined by examining statements in

a non-technical language. Descartes' "implication" is largely confined to applications of category truths (or category analysis) to fact statements; all the rest, it turns out, is inference guaranteed by inspection of what is completely known (if we really attend to our notions), and a rule of procedure which amounts to "inspect carefully, and ignore what is not clear and distinct".

The structure of Reality, if it "corresponds" to thought, is thus in an important sense indicated for Descartes by the relation between attributes and the substance to which they "belong", or in which they "inhere" or "reside", and this relation is either logical or categorial or a complete mystery. (The "relation" is insisted upon as logical, necessary, and "clear and distinct"; it is mysterious only when it is denied that the substance can never be known). The structure of Reality is also, however, a set of relations between mind-things and body-things, and these relations are either merely spatial, or logical in the sense that they can be proven and not observed (and we revert to the structure above) or they too are a complete mystery.

Whether Arnauld had Descartes specifically in mind in his reference to the "new philosophy" is not of importance here - perhaps he thought of Malebranche, but the cap fits Descartes as it fits so many post-Cartesian scientists. What is involved is not the denial of the category of substance and the assertion that the categories are limited to attributes - which is tantamount to a claim that nouns can be dismissed from language and our statements confined to uses of

adjectives, adverbs, verbs and conjunctions - but that we need only two nouns, and can dispense with practically the whole range of all parts of speech which we familiarly employ though preserving specimens of each type. Unless.... our familiar language and its logical or metaphysical or categorial structure is preserved for the familiar world as an "object of thought", a phenomenal and mental "thing".

If we interpret the "unknown substance" doctrine as Descartes sometimes does, namely as enabling us to analyse any noun we use in statements into "thing" and a "principal attribute", all we need to do to re-write our statements is to write for a subject like "this cat", "this thing which is feline", and our statements of its relations and acts and non-defining properties will be exactly the same as before except for the changed (but equivalent) subject. The logic of statements and the classification of statements will be unaltered, and if there is to be disagreement between someone insisting on conventional forms and Descartes it will be disagreement about the doctrine of "principal attributes of which everything has one" - a doctrine which Descartes makes no attempt to justify and which is impossible to maintain on a thesis of "simple notions". (Descartes probably saw "clearly and distinctly" that "principal" implies one).

While the two nouns are preserved, the categories "re-assert themselves" - "action" appears in "thinking", treated literally as act and not as process; and even if it

is treated as process¹, "act" is restored with God, who started the two machines and keeps on driving them across the ruts of time.

I shall not attempt to take up the special question of what logical categories will re-assert themselves in any science which, with perfect justification, restricts the things it studies and the questions it asks. I shall not even raise the question of the possibility of a science in which no terms are fact terms or directly related to fact terms in ordinary discourse; I make only the obvious comment that such a science would have no relation to the world as we know it. What I do wish to stress is the way in which the account I have suggested of Categories enables us to

1. "Thoughts are....in me". Many philosophers advance this claim, and what I have argued in the case of Descartes is that "in me" is meaningless on his own thesis. The "spectator Ego", and the vacuous Consciousness or Self-consciousness of later philosophers, are not of any assistance. Hegel, treating Thought as Object and also as Scientia, identifies "thought as historical process" and "Scientia as historically developing". "Thought self-conscious" becomes "science of thought", or Logic in a special sense. His position is intelligible enough, even if the treatment of Science as a sort of resultant of a joint enterprise of "culture" or "society" leads him to over-simplify history and history of science and philosophy in the interests of a theory of development. But we have no account of "individual minds"; individuals make their contribution to Scientia, a contribution which is, as "thought", objective. It is to this sort of view that the Regulae doctrine of simple notions and truths belongs - they are the irreducible concepts of Scientia, and the formal rules are criteria for the combination of concepts in any case being part of Scientia. The "thing" of "thinking thing" is not the thought-substance whose forms are thoughts and scientia (or fancy); it has to be put into Scientia, and can be, I argue, as "scientist". At the level of particle physics a scientist-man cannot be put into "the world", and this is Descartes' foundation for "mind or soul".

relate metaphysical doctrines to facts and to sciences, to understand why metaphysics come and go and re-appear (rather differently from the way in which scientific theories come and go and re-appear), while the general language remains enriched only by metaphors and odd idioms and the natural sciences present a developing "ordinary world". It enables us to understand why so many different metaphysics seem to function by asserting one Category as the Real Category - a feature of metaphysics which is not my discovery but Hegel's, unless my ignorance of history makes me credit him in error in acknowledging a debt.

On my general thesis, which I contend is Aristotelian, neither a statement in logic or a statement of categories will contain a term which can appear in a fact statement or in a statement which comes under the head of "natural science". The distinction between "thinking substance" and "extended substance" is not a category distinction, and Aristotle maintained neither the distinction nor that it was categorial.

Chapter XII.

The Doctrine of Soul in the De Anima.

1. Certain claims are advanced as to Aristotle's general position. He is a natural scientist, and values of variables in his logical and category principles are to be found in natural science.

(p.527) Special difficulties are briefly discussed, to show why I do not begin with nous and the God of Metaphysics L. Aristotle works in the opposite direction from that of Descartes. He established the biological sciences which Descartes thought that he could establish in spite of his dualism of substances; he established as well the formal sciences, the technical terms of which Descartes misunderstood and misused.

(p.534). Ross's summary of Aristotle's doctrine presented and discussed at length.

A. Ross presents correctly what Aristotle says are the problems which must be solved before he can undertake the task he envisages, but presents no solution to these "first problems". Aristotle does give the solutions, and these entail that "soul" does not designate a substance *qua* individual.

(p.535) Arguments to soul-as-substance and soul-structure from geometrical facts are mis-based, and produce the opposite conclusion from that claimed - if there is analogy, "soul" is attribute or form, not substance.

(p.542) Ross's rhetorical "series of souls" stops at two, and can at best be extended to three. But Aristotle is talking of powers and faculties of an organism. He relates "soul" to classification of organisms throughout.

B. "x has a soul" is equivalent to "x has a set of powers". Both are closely related to "x is alive".

2. Three sections of the De Anima cited and discussed to demonstrate that for Aristotle values of x in "x is a thinking thing" are men; in "x is able to sense and feel" are "animal" (including "man"), etc.

3. What is possible to human scientists.

(p.565). What happens when category terms are alienated from natural science illustrated by a discussion of J.S.Mill.

(p.572). Aristotle's Categories discussed. The technical terms belong to a formal science which is related to logic - none of the terms are "material".

(p.578). Aristotle's problem is the Greek problem

of Being, i.e. "What can be said in a full sense to be?"

The answer is "an historical individual", and this must be elaborated by reference to natural classification and definition. to de ti and ousia discussed, related to the Categories, and the complex of technical terms shown to be inter-related.

(p.582) Logic, Classification and Substance. These are discussed in some detail, and related to what has been argued throughout the thesis. "We are men" and "men can do natural science and metaphysics" are taken for granted by Descartes and by Aristotle.

The peculiarity of "taking for granted" in this sense has been discussed above, but the situation is that Aristotle genuinely accepts it. Qua individuals we as men come under the category of Substance, and satisfy the demands of metaphysics, of logic and of science.

"If we turn our attention to the nature of nature of living beings in this world, in the consideration of which reason is called to accept as a principle, that no organ, no faculty, no appetite is useless, and that nothing is superfluous, we are led to the conclusion that, on the contrary, everything is perfectly ordered to its destination in life. We shall find that man, who alone in the final end and aim of this world, is made the only animal that seems to be exempted from it."

Descartes, *Discourse of Method* (Reformation of Human Reason).

"I had often said myself that the immaterial soul, and shown that it could be so shown by reason from the power of matter, as the other things of which I had spoken, but that it must be immaterially created, and that it was not sufficient that it be lodged in the human body like a pilot in a ship, unless perhaps to save its material, but that it is necessary for it to be joined and united very closely to the body in order to have sensations and operations peculiar to man, and thus constitute a real man."

Descartes, *Discourse of Method*, Pt V.

"Aristotle, 2000 years ago, was asking how is the mind extended to the body. We are asking that question still."

Sir Charles Sherrington, introducing a series of lectures published as *The Evolution of Mind*.

"Again, within the region of mind there are apparently very profound differences. Oysters, perhaps, can only feel; cats, perhaps, can only feel and perceive; men can feel, perceive and reason, and so on. Secondly, we have to notice that there is in fact a most intimate relation between minds and living bodies. The minds that we know are not disembodied spirits; they seem to be tied to organisms, to grow and decay with them, and to cease when they die. Moreover, in our part of the world at any rate, there seems to have been a gradual historical development of mind going hand in hand with a growth in the complexity of living things. Any theory of Reality which can claim to be even approximately adequate must take such apparent facts into account, and must contain a doctrine of matter and mind which shall be consistent with them. Now it may well be that, of the various theories which were possible when we considered merely the common properties of mind and matter and when we looked on mind merely as the contemplator of matter, some will be ruled out when we take account of the different sorts of mind and matter, and the apparent relation of dependence between these two departments of Reality".

C.D. Broad. The Mind and Its Place in Nature. p.9.

"If we turn our attention to the analogy of nature of living beings in this world, in the consideration of which reason is obliged to accept as a principle, that no organ, no faculty, no appetite is useless, and that nothing is superfluous, nothing unsuited to its end; but that, on the contrary, everything is perfectly conformed to its destination in life - we shall find that man, who alone is the final end and aim of this order, is still the only animal that seems to be excepted from it".

Kant. Critique of Pure Reason. (Refutation of Mendelssohn).

"I had after this described the reasonable soul, and shown that it could by no means be educed from the power of matter, as the other things of which I had spoken, but that it must be expressly created; and that it was not sufficient that it be lodged in the human body like a pilot in a ship, unless perhaps to move its members, but that it is necessary for it to be joined and united more closely to the body in order to have sensations and appetites similar to ours, and thus constitute a real man".

Descartes. Discourse on Method. Pt V.

"Aristotle, 2000 years ago, was asking how is the mind attached to the body. We are asking that question still".

Sir Charles Sherrington, introducing a series of broadcast talks published as "The Physical Basis of Mind".

Chapter XII.

The Doctrine of Soul in the De Anima.

"Les amis de Monsieur des Cartes qui prennent son homme pour une machine, auront sans doute, pour moy la bonté de croire, que ie ne parle point icy contre sa machine, dont j'admire l'artifice; mais pour ceux qui entreprennent de demontrer que l'homme de Monsieur des Cartes est fait comme les autres hommes: l'experience de l'Anatomie leur fera voir que cette entreprise ne leur scauroit reussir".

The address of M. Stenon (a competent anatomist) to the gathering at the house of M. Thevenet. Subject: The Anatomy of the Brain. 1669.

"If one uses the expressive terminology of Ryle (1949) the "ghost" operates a 'machine', not of ropes and pulleys, valves and pipes, but of microscopic spatio-temporal patterns of activity in the neuronal net woven by the synaptic connexions of ten thousand million neurones, and even then only by operating on neurones that are momentarily poised close to a just-threshold level of excitability. It would appear that this is the sort of machine a 'ghost' could operate, if by ghost we mean in the first place an agent whose action has escaped detection even by the most delicate physical instruments".

J.C. Eccles. The Neurophysiological Basis of Mind.

"It has a slow and dark birth, more mysterious than the birth of a body. When the soul of a man is born in this country there are nets flung to hold it back from flight. You talk to me of nationality, language, religion. I shall try to fly by those nets".

Stephen Daedalus, in Joyce's Portrait of the Artist as a Young Man.

Oh my Lord, lye not idle;
The chiefest action of a man of great spirit,
Is never to be out of action; we should thinke
The soule was never put into the body
Which has so many rare and curious pieces
Of Mathematicall motion, to stand still".

Romelio, in Webster's Devil's Law Case.

(Early 17th Century).

The Doctrine of Soul in the De Anima.

I want, in this final chapter, to consider chiefly a section of the De Anima which gave rise to the present title, and indeed to the complex form, of this thesis. I shall use Ross's summary of the central doctrine, since it is brief, authoritative and clear as to the question which I want to stress and discuss in terms of it - "Philosophers have talked much of "soul", but what sort of concept is it? Does it come under the category of substance, quale, quantum or some other?".

(a) The question, for the "outsider", is immediately: "What does it mean to say that anything comes under a category? What is meant by the category-terms?". And immediately, when we turn to the Categories for information, we are confronted with a doctrine based directly and essentially on predication, on "that which is subject of predicates but not itself predicable of any thing". Further, Aristotle himself asks "Is soul potentiality or actuality?", and proceeds to raise questions of classification and demonstration, while the terms form and matter and organisation of organs appear as soon as he begins to make statements about what his own doctrine is. We are, in other words, confronted immediately with a set of technical terms, of inter-related technical concepts, with stress on the question of which of them, and which related procedure, is or are relevant to our new field of inquiry, i.e. to one different from that or those in which the technical terms were established.

separable from body) to a different thesis in the early parts of the De Anima with its reservation about nous, and to the later parts of the De Anima with a special treatment of nous, and finally to the God-mind of Metaphysics 12. The last represents the tip of one horn of the dilemma which Nuyens characterises as "le dilemme de l'âme-intellect". I draw attention to this, since if we begin with the God-mind, a substance self-conscious and thinking only about its thoughts, the content of which is purely formal, consisting of intuited simples akin to simples which the human being intuits and must accept because they are unanalysable, who or which knows nothing of the visible universe or of the science thereof, we begin with what Descartes should have regarded as his completely "unembodied" self. Aristotle seems further to add, as I have claimed Descartes must add, that the "simple contents" are potential, and, as I have argued Descartes must add, though with illicit "material" included, that subject and object are one, so that at the divine level mind as thinker and mind as thought cannot even be logically distinguished. And quite clearly, I suggest, no matter what happens to such a mind, any further thinking is possible only if different contents are got into the mind so that they can be operated on.

We begin, if we begin here, with a substance (self-conscious) and an act of its as agent (Ego Cogito); a distinction of form and matter in the object of such an act in the case of man results in a claim that the object may be purely formal,

and in the case of God must be purely formal, and immediately afterwards the substance-agent-act-object statement is declared to be meaningless. What is substituted for it is a statement of process, and the attempts of rationalists and idealists to show that Act can be preserved as Mere or Pure, Divine or Mental, whether at the level of theology or rational psychology, suffer shipwreck precisely on the logical difference between "process" (which demands no agent and makes "self-conscious" meaningless) and "act" (which enables a meaning to be given to "self" because it demands an agent).

The same transition is to be found in parts of the discussion of nous in the De Anima. It might be said to begin to be apparent as soon as the discussion of the senses produces the notion of special objects and their function as matters formed or related or united in judgments, or as giving rise to concepts (higher-level objects) which are so related. The discussion is dubiously intelligible - our terms and concepts do not seem to fit the Aristotelian. When in Chapter V of Book III Aristotle claims that in the case of soul, as in the case of "every class of things, as in nature as a whole, we find two factors involved, a matter which is potentially all the particulars in a class and a cause which is productive in the sense that it makes them all (the latter standing to the former as e.g. an art to its material), and goes on to speak of the mind as "pure, impassible, ~~separable~~", and "in its essential nature activity",¹ it seems that either his

1. Unless otherwise indicated, all quotations are from J.A. Smith's translation.

words or ours are betraying us.

(d). Is it not unjust, then, to Descartes to begin with his metaphysics, contrasting him with an Aristotle whose metaphysical difficulties I ignore, and whose metaphysical difficulties appear, almost literally, to be those of Descartes? And is it not ridiculous to ignore all that is difficult in Aristotle while claiming to present an "Aristotelian" point of view? Especially if you are prepared to admit that if you begin with Metaphysics 12 and the nous doctrine of pure act and objects there seems no more hope of getting to observation in its ordinary sense than in the case of Descartes?

The answers, brief and incomplete, are:

(i) Aristotle begins with natural science, and principles demonstrated therein. Nous and the God-mind are argued to, not from. If Descartes had a natural science, had principles which derived honestly from natural science, I would have begun with it and with them. But in brute fact he has neither. He begins with a rejection of organisms from consideration, and can never restore them though he talks much in his introductions of men and medicine; Aristotle talks of organisms throughout the De Anima, and actually founds the sciences which Descartes claimed to be founding.

(ii) I have not ignored the Aristotelian problems, but have been considering them throughout the thesis. Particular attention has not been paid to his statements, but in considering thought and its theory, simple notions, images and concepts and the theory and nature of formal as well as natural science, I have been asking his questions and have sought to answer them using his principles, at length instead of in summary form. That certain consequences do not follow which Aristotle thought did follow leaves the natural science and the logic, the doctrine of categories and a variety of principles, quite intact.

(iii) I think I can now understand why Aristotle had particular difficulties, not apparent until we analyse arguments and seek their background in previous philosophy, not apparent until we have studied in detail his principles and his application of them. What appears to me now to be Aristotle's question is not "How is the soul related to the body?", but "If we are to maintain our science of living

organisms and a science of matters, must we posit a soul which is a substance?"

It is that question which I have advanced as the genuine "form" of the "mind-body" problem. A brief sketch of the way in which I believe it arises for Aristotle will make clear what I have intended by my use of "Aristotelian".

(a) His biological classification, its associated theory of classification, and the propositional and syllogistic character of statements and arguments which validate (or constitute) particular classifications is correlative with an acceptance of observation statements, of animals as individuals discriminable numerically and generically. It is appropriate here to talk of animals as sensing, perceiving, reflecting, as doing science and science of animals who so act. It is appropriate also to talk of genus and differentia, of definition and essence, of growth and generation and nourishment, of loving and hating, acting and not acting, being acted upon and not being acted upon. Aristotle provides the logical foundation of a science of such animals, i.e. of historical individuals, making both change and changing things scientifically and philosophically respectable. (The clearest discussion of this is in Physics I. There Aristotle introduces the technical term "substrate", which does not mean "an unknown and necessary thing which does not change and explains change" but "the subject, whether a matter or a thing, of any intelligible statement of change". We have here perhaps the best example of Aristotle's recognition of the nature of philosophical principles, and of his rejection of a logic of self-identical terms and relations of such terms).

(b). The matter-form doctrine begins with a thing-matter-form analysis, and illustrations of a special form of becoming, cases such as that of a form being imposed by an artist on a "formless" stuff. Understandably, since many of our sciences were not developed, he has too simple a notion of the "inorganic world". The full effect of the principle of matter-and-form, as analysis of "a thing", can be sought only by considering it in detail, and in more detail than I have done above not less; it operates in the physical sciences as well as the "medical" sciences, and Aristotle lacked both.

But the doctrine, applicable in a special sense to statues and artefacts (which are individuals, as organisms are individuals, i.e. historical entities coming to be and ceasing to be), must be applied to organisms themselves. It must be applied as I have applied it, not simpliciter; and (admitting that it is difficult for a variety of reasons to give detailed references - what is in question is the change in mode of discussion after the discussion of sense and organ in Book II of the De Anima) the simple application seems to trap Aristotle into (a) treating "matter" as the individuating factor in contrast with generic or classificatory or universal features and essences, (b) confusing "form" in a strict sense and "attribute", which is related to "individual" and not to "matter" (by "formed-matter" is meant the individual - recall the discussion in the previous chapter), (c) treating the form-matter analysis as demanding a substitution of "form" for "individual" as agent, which (d) leads to "powers" being

considered as agents, or as the powers of the form, i.e. of the soul. What seems to follow is both the treatment of sensation as actualised power or process, and the further doctrine that what is known is the form only, together with the treatment of soul "forms" as impressed on the senses, as resident in the senses or sense-organs, and (qua higher level entities) resident in "mind" and elements in the mind process which is "thinking".

(e) One of the consequences is that Aristotle is as much in difficulty in talking about senses and organs as were his successors and are his successors. Nevertheless, it is remarkable how late in the De Anima the difficulties arise, and what I want chiefly to show is that, on the main argument, all of our discussion of "soul" depends upon the meaningfulness and truth of statements about organisms, as classifiable and as acting or suffering in distinguishable ways, being in distinguishable states (by whomever and however the distinguishing is done), and upon the validity of the distinction between "living" and "non-living" at this level. Here classification is possible because existing individuals can be studied and classified; syllogism operates, since quantification of subjects is possible and syllogistic arguments justify a classification as they can be read off from a determined classification; the doctrine of categories follows (initially) of necessity if natural science is taken to be possible; and the resulting problems make it clear how actuality-potentiality, and matter-form, are to be applied, and why "the individual" and "substance-as-individual" were so

much in the forefront of Aristotle's thought.

I begin, then, with Ross's summary.

.....

"The object of psychology is to discover the nature and essence of soul, and its attributes (De.An.402^a7). The method of dealing with attributes is demonstration; is there, Aristotle asks, a corresponding method of discovering the essence? He suggests division as a possible method, and in effect adopts it. The first step is to determine to which of the main divisions of being - the categories - soul belongs, and again whether it is an actuality or a potentiality. But at this point a difficulty arises. Suppose there are different kinds of soul, and various species or perhaps even genera arising from the presence of these parts in various combinations; it may be that the primary facts are the different kinds of soul, and that there is no one thing answering to the name "soul" in general, or only a slight nucleus of common nature in the various souls (402^a10-^b8).

Aristotle's answer is in effect that the kinds of soul are neither so much alike that any single definition of soul will give a sufficient idea of its varieties, ranging from its humble manifestations in plants and zoophytes to the heights it reaches in man or in God, nor yet so different that we cannot recognise a common nature in all its varieties. Geometrical figures can be arranged in an order beginning with the triangle and proceeding to more and more complex forms, each of which contains potentially all that precede. So, too, the forms of soul form a series with a definite order, such that each kind of soul presupposes all that come before it in this order, without being implied by them. The minimal soul is the nutritive, for this exists in all living or "be-souled" beings: in plants and animals alike. Next comes the sensitive soul, which exists in all animals. Within the sensitive soul the same scheme appears, for touch is a minimal form of sensation, presupposed by all the others, present whenever they are and sometimes when they are not (412^a2-4, 415^a3-6, 435^a12). And it is not perhaps too fanciful to say that for Aristotle, touch, taste, smell, hearing, sight form a series in which the distinctive nature of sensation, that of 'receiving the form without the matter' of its objects, is increasingly manifested (cf. 429^a2).

"The sensitive soul has not merely the function of perceiving, but, as a necessary consequence of this, that of feeling pleasure and pain, and therefore of desiring, which is found in all animals. There are two other faculties which are outgrowths from the sensitive faculty, found in most animals but not in all. (I) There is an outgrowth on the cognitive side, which Aristotle calls imagination (phantasia)

of this in turn memory is a further development. And (2) there is an outgrowth from it on the appetitive side, the faculty of movement. Finally there is a faculty peculiar to man, that of reason. This is treated as generically distinct from perception, yet to perception, when acting not in any of its specialised forms, as sight, hearing etc., but in its generic nature as perception, are assigned various functions which tend to bridge the gulf between sense and reason".¹

.....

We may note that Descartes begins, perhaps coincidentally, with "division" - "the only summa genera I recognise are minds and bodies" is the gist of Descartes' first premise (Cf. Principles 1.XLVIII). He finds it immediately obvious that "mind or soul" is a substance, that its essence is "thinking" or, as in Meditation II, "perception of mental content". He has his species or varieties - doubting, affirming, loving, hating, knowing objects and being ignorant of objects. These are varieties as "modes" - such varieties as your mind and mine he does not discuss, but assumes identity and difference, assuming existence, as he pleases, and only men have souls. The "common nature" is substantial identity and identical thinking for him.

If we take Ross's account as it stands there are two distinct types of difficulty in understanding it. The first is of understanding what several of his expressions - which are not Aristotle's - actually mean, and this we may let rest for the moment. The second is that Aristotle is presented as suggesting and employing division, but equally insisting that before dividing we must answer the questions "What category?" and "Actuality or potentiality?".

What answer is given?

A. The summary seems to indicate none. Ross stresses geometrical figures as an example of an alternative to a single definition, but this does not help much since it is not easy to see the parallel between "souls" and "figures", even if we designate "figures" by nouns and use "the" and "a". Aristotle actually gives a second alternative : "Can soul be defined in a single unambiguous formula, as is the case with animal, or whether we must not give a separate formula for each sort of it, as we do for horse, dog, man, god (in the latter case the "universal" animal - and so too for every common predicate - being treated as nothing at all or as a later product)". (Smith explains the bracketed section as equivalent to "pre-supposing the various kinds and members of kinds"; Hick's prefers "logically posterior". Aristotle has a general concern with this question, considered below - stripped of references to "knowledge", it is roughly a question of whether the meaning of a genus characterisation is dependent on the meaning of specific characterisations or vice versa).

The example is important in part because Aristotle thinks previous discussions to have been too much concerned with human beings, and because there is no possibility of making a member of a "higher species" from a member or members of a lower or lower, e.g. a man from a dog or dogs, a god from a man or men (the lack of possibility being a lesson in the nature of classification or of any Scala Naturae), and we have no need to add a quadruped and a vertebrate to a cat in order to get an animal. It is certainly true that we can divide a square into triangles, this being Aristotle's actual and only

claim, meagre as it is beside beside Ross's statement about "geometrical figures" and "more and more complex forms" each potentially containing the preceding.

I am indebted to Sherrington ¹ for the information that Fernel, that important physician, claiming that Aristotle was wrong about the mode of union of souls, and arguing that the rational soul "absorbed" the other souls, uses the possibility of creating figures from other figures as an indication of how substances can be united to give one substance. Descartes uses geometrical figures as an example of classification, and a demonstration of the meaning of "genus", "species" etc. in Principles I.LXIX.

Yet at the end of I.I Aristotle stresses the difference between a natural science and the special science of mathematics, which deals with "attributes separable by abstraction", and while either a classification of figures or of animals would illustrate the formal features of any classification, the difference between "geometrical things" and zoological things is not thereby altered, and the issue, when we turn to "souls", remains as to whether they are like the zoological or like the geometrical; and while we are concerned with triangles and plane figures, this amounts, I claim, to a question of logical likeness to substances or attributes, and this is exactly what "coming under a category" means here.

Let it be stressed that there is nothing especially "geometrical" in the insistence on demonstration. Geometry illustrates the way in which a set of definitions enables a

1. Man on His Nature. Ch. 2.

special form of proof to be given to the "undefined properties" or "non-defining properties", the attributes as distinct from the essence which is excluded from attributes by being incorporated in the "designated subject". In general what is required for demonstration is a universal major premise, and this is not peculiar to geometry - indeed, as I have shown above, geometry seems peculiar in relation to it, and Aristotle is much concerned with the relation between universal major premises and definitions. But I also mentioned above Descartes' complaint against geometers, that they had taken "line" and "surface" to be "truly distinct" from body and from one another, an objection which is close to Aristotle's objection to the triangles of the Timaeus. The point to be stressed is that "triangularity" could be regarded as a particular attribute of a surface of a body, but all that could be claimed to exist as things to be classified would be bodies with triangular surfaces, and not triangles. (The ubiquity of uses of "thing" demands, perhaps, that we say "triangles are not things in the sense that bodies with triangular surfaces are things, co-classifiable with things like men and trees." This ubiquity is what confuses discussions of the Categories). While the range of "figures composed of triangles" is limited, that of "regular solids composed of solids with triangular surfaces" is even more limited, while there are no solids which are "composed" of surfaces or triangles.

Further, it is obviously the case that "irrational"

figures do characterise the surfaces of real or encountered bodies, while the "rational" do not, and it is a geometers' commonplace that the "truth" of a geometrical classification does not entail the existence of any "geometrical" bodies as individuals historically related to other existing bodily things.

Thus, while it is easy to treat any solid figures as modifications of one substance-stuff, space or extension, the planes and surfaces and their specifications remain "formal"; there is no reason to claim that if regular bodies existed they would be different from existing irregular bodies in not being "forms" of the various distinguishable matters encountered bodies are in fact found to consist of; if we want to talk of the geometer's solids as "potential existents" the advantage is entirely with the Aristotelian formulation along the lines "there are at best empirical reasons why existing matters in their irregular forms should not be given a regular form", and the geometer's truths would then be clearly true of the regular body whatever matter its surface "enclosed". While "substantiality" belongs to animals in the same sense of "formed-matter", since they are bodies, it also belongs to them in an entirely different sense - their "unity of kind", their being this or that animal is not related to "one stuff because no distinction of stuff is relevant" but to specific stuffs and forms and structures, and their being this or that animal derives directly from classifications in structuring which the question of "stuffs" need not arise. Even as bodies, cats and dogs cannot be

considered as bits of animal or made up of bits of animal; and on the side of form Aristotle insists on "organisation of organs".

In fact, the argument seems to result in the conclusion that "souls" are like "forms" or "attributes". Forms and attributes do, in a variety of senses, intermingle - though we get special problems if we insist on any strictness in our use of "form". But so, too, do acts, since performing one type of act may involve doing what is involved in doing a variety of tasks. This is the foundation of contemporary "factor analysis" - statistical examination of the measurable results of complex performances, or performances of complex tasks, indicates "elemental performances", perhaps in fact not isolable, and a "factor" is "a capacity to perform so". Of the oddities and subtleties and complexities of individual procedures and claims there is no room to comment, but it must be noted that the intermingling of acts entails the intermingling of powers only in the sense that "A does X" entails "A has the power to do X", and the "powers" are not thing-agents.

There is here no argument directly from act to power and to soul-agent, as there is not when Descartes classes cogitandi modi as species or kinds of thinking. If we remove the linguistic awkwardness of "souls are attributes" by writing "our soul-talk is talk of what organisms do and can do" the argument can be stated as "soul-terms function in discourse as do words like "triangle" and "figure" in the sense we have illustrated". There is no force to any claim

that the illustration is relevant to a discussion of souls as substances.

B. Aristotle begins, not with an issue as to whether animals think or souls think, but with a survey of what his predecessors have had to say about soul. He poses, as Ross points out, the questions "What category?" and "Potentiality or actuality?" as preliminary questions, to be answered before we know what we are classifying. And part of what is entailed by this is whether we are to classify by presenting a hierarchy of attributes or by noting distinctions, determining essences, and considering the individuals (the substances) who cannot be placed in a hierarchical order at all. There is no need to misunderstand the logic or the procedure of classification in order to understand Aristotle. I comment on this below.

The immediate point is not obscurity of the terms in the questions, since Ross, like Aristotle, discusses them elsewhere, and we can quite justifiably be asked to look elsewhere to find what is meant by "a this somewhat", "quantum", "quale", "actus" or Aristotle's equivalents. It is simply the case that no answer is given by Ross, although he insists that the division which depends on the answers is at least "in effect" carried through.

And as soon as we continue we are confronted by another question: "What is the connection between soul as substance or quale or actus, potentiality or actuality, and the "nutrition", "sensation", "imagination" etc. which are discussed by Aristotle, as by Ross, under separate headings?" Ross's statement of the final position, like statements made by

many others in similar contexts, seem to involve different answers at the same time, i.e. the writers treat soul as substance and as quale or actus or relation, and while discussing the relation between soul and sensation etc. as connections between substance and act, they present distinctions and connections as relations between substances.

a. The questions are, I claim, both answered, and answered in such a way that it becomes meaningless for Aristotle to say that the soul is a substance in the sense of an agent, or individual qua thing. Hence it is meaningless to speak of the soul as doing anything or suffering anything, or as being within a body or related to a body in any spatial sense. And one of the consequences of this conclusion is that a meaning can be given to Aristotle's talk of "parts of the soul".

Consider Ross's formulation. We seem to be offered a list of the kinds of soul from the humble manifestations in plants and zoophytes, ranging to the heights attained in man and in God; but the series of souls stops surprisingly short at two, the sensitive and the nutritive, so that the talk of each soul pre-supposing all that comes before seems at least superfluous, and these correspond to the classes "animals" and "animals and plants". Further, we seem suddenly to have stopped reading about souls at all, and are reading about faculties and capacities only - even "reason" appears as "a faculty peculiar to man".

The lowest soul in the "series" is the nutritive, the

second is the sensitive. "Within" the sensitive is the set of distinctions which produces the hierarchy of touch, taste, smell, hearing and sight. The sensitive soul is said also to feel pleasure and pain, and so to desire, and it has two further features, the faculty of movement (always) and of imagination (sometimes). (What exactly we are to understand by the reference to "within the sensitive soul", and to "faculties of movement and imagination" as off-shoots, I do not know.) We still have to find a place for (or a kind of soul for) belief and opinion, and for the thought which involves imagination and images - Ross argues (p. 148) that Aristotle rejects Plato's "imageless thought" of Republic 510^b-511^d, and the De Anima is clear in 431^a16-17 and 432^a12-14: "The soul never thinks without an image", and "...neither these nor the rest of our notions are images...but they cannot dispense with images".¹ Further, calculation and practical reason and all the distinctions made later in the De Anima will have to be located somewhere on the hierarchy.

The pattern is by no means so clear or so simple now. Each of the senses can be called a faculty - so can calculation, imagination etc. - but it would I think be ridiculous to suggest that Aristotle regarded each faculty as implying a distinct soul.

1. Aristotle here does speak of the soul thinking. But it is not nous, and thought is thus a faculty of soul. Note, however, the resemblance to Descartes' "corporeal images" which make possible awareness of extended substance. And, in conjunction with the argument of 403^b5-10, what is entailed is that thinking of any kind involves a bodily agent and is thus a matter for natural science. Anger, courage, appetite and sensation are said to involve body; thinking to be an exception if it does not prove "to be a form of imagination" which requires a body.

If the soul is a substance qua thing, then the sensitive soul has a number of faculties or powers, and the hierarchy of senses is a hierarchy of powers. If the nutritive soul has one function or faculty or, when we add "reproduction" as we must when we consider later statements in the De Anima, two functions or faculties, and there is a further faculty found only in man which does not belong to the sensitive soul, then we have a hierarchy of three souls, the traditional sensitive, or middle soul, and the lower nutritive and upper rational. As I have stressed, there is nothing illogical in this, since we have things with powers, namely souls of different kinds, provided of course that we can give some account of the soul-things.

But the question to be considered is whether Aristotle intended in the least to suggest that there were three souls or soul-things, as distinct from different things differently souled, things with different powers. And we may note immediately that it is very difficult to see any sense in which the nutritive soul can be said to digest its food and even more difficult to see any sense in which it can be said to grow or to reproduce; certainly there is no way in which this soul can be said to "act" as it is suggested the sensitive soul can sense; and if there is purely rational soul its activity will be completely cut off from the activity of the sensitive soul while its "thought" will have neither sensible nor imaginable content.

The hierarchy of powers of the sensitive soul involves no souls, but only powers, powers related in such a way that

taste presupposes touch, smell taste, hearing smell, and sight hearing. But in so far as these are distinct, examination of any soul or any set of sensitive souls would not give a hierarchy since each would have all the faculties and there is no means of ordering. We can write "any soul which has smell has touch, any soul with taste has smell etc.", but what we must ask is whether this means more than that any living thing which has power to smell has power to touch etc.. We can order given an organism with power-x, organisms with powers x and y, and none with power y and not power x. Aristotle in fact establishes the hierarchy in two ways, (a) by indicating organisms which have certain powers and not others, though none have the ~~others~~ without the first, and (b) by considering the utility and necessity of the powers to animals in a complex environment.

The three souls, considered as corresponding to plants, animals and men as kinds or as classes, have the same relation of pre-supposition of lower kinds. We can write: any thing which has power to sense has power to be nourished (and to reproduce); any thing which has the power to reason has power to sense and power to be nourished. It is surely meaningless to say that being an animal presupposes being a plant, though being the first guarantees the possession of powers possessed by the second; and I can find nothing in Aristotle to suggest that what has a sensitive soul has also a separate nutritive soul, or that man has three souls - that within the body of man there are three soul-things.

distinct souls in man, two in animals, or (c) one kind of

The distinction of souls repeats, and only repeats, the distinction of plants, brutes and men; what is stated is that living things can be divided into three classes, and that along with the distinctions of classes go distinctions of powers and activities, distinctions in the main of what the members of the classes can do and do.

It is true that Aristotle remarks in 413^a5-10 that "we have no light on the problem whether the soul may not be the actuality of the body in the sense in which the sailor is the actuality of the ship", but here he speaks of the soul, and the "problem" is not further considered. And when we turn to the De Partibus Animalium, where the first methodological problem of starting with generic or specific concepts is discussed in detail, or the Historia Animalium, where we find the notion of "Nature proceeding little by little from things lifeless to animal life", from which the rhetorical "Continuous scale" and "Scala Naturae" are extracted by enthusiasts and converted into diagrammatic classifications (see Charles Singer's writings for historical details, Ross's p.117 for a diagram), we find that it is precisely what organisms can do and their mode of doing it which provides the "vertical ordering" within any division of a scala.

If a soul is a substance (qua thing, and not qua power or form or essence - and qua essence it is closer to the generic "living" than the generic "sensing", which is of dubious meaning for Aristotle) then "pre-supposition" demands either (a) a lower soul in a higher soul, or (b) three distinct souls in man, two in animals, or (c) one kind of

soul and one only which (i) reveals its potentialities differently in plants, brutes and men, or (ii) develops new potentialities according to whether it is in plants or brutes or men. (Each of these would involve different sorts of answers to questions about distinctions between the souls of birds, snakes, mice, leopards and tarantulas - there is nothing like insistence on the fullness of subject matter to bring out the emptiness of a theory, or like insistence upon specific variety to show what generic identity means).

(cii) is transmigration doctrine - which involves "any soul may be in any body", and Aristotle dismisses this contemptuously (407^b). (ci) is in little better case - any soul in any body, but different only because of the body. (b) seems to have nothing to support it in Aristotle, whatever interpretation is placed upon nous. Aristotle indeed lays too much stress on the unity of the organism, on the soul as the first actuality of the (living) organisation of organs, to make it possible for any of these views to be his. And (a) is simply incomprehensible, a form of words without matter, if souls are not sets of powers ~~but~~ things.

B. If "x has a soul" is equivalent to "x has a set of powers", this is perfectly in accordance with Aristotle's doctrine that a potentiality is always possessed by some thing, and on any account the "power" will be "known" subsequently to observation of the "act", if it is act-power in question, or the

process if it is a process-power in question. If the powers are possessed by organisms, then the biological classification with its hierarchy is intelligible, and so is the possibility of further investigation to determine what the distribution of powers is in relation to organisms, how the powers are related as possessed by organisms, and how the power-acts are inter-related, along with the conditions of such actualisations as acts. If "parts" is equivalent to "faculties", as Ross suggests ("And though he often uses the traditional expression 'parts of the soul' the word he prefers is 'faculties' -p.133), the faculties or parts may be considered (1) generically, as what faculties there are, or (2) specifically, as what faculties occur in different types of individuals or in single individuals. And a further question of the relation between faculties considered in detail and the historico-geographic situation of individuals, or between faculties and science or any human enterprise, could equally well be discussed.

This programme certainly fits the De Anima, and it could follow directly from the biological studies and classifications, which already involve in some part the act-faculty doctrine. But do the biological classifications involve more? I want briefly to indicate that they do involve more.

(1) Illustrations of soul-body "relation" are given by Aristotle in terms of analogy: the seal-formed wax, the axe and its cutting power, body and line or surface. These are not instance of soul, but of the essential predication which is the relation of organism and soul. The predicate is

"inseparable", since if "x is now souled" is false, then "x's soul exists" is meaningless, and "x is a living thing" is false - x has become an anatomist's body. As "the first actuality of a natural body having the capacity of life" - Smith's additional "potentially in it" in 412^a is an indication of how easily "capacity" is treated as a substance - or as "the first actuality of a natural body furnished with organs", soul is correlated with life : "x is alive" implies "x is souled", and vice versa.

Compare Ross (p.134): "Aristotle is helped (here) by the fact that the natural expression in Greek for a living thing is ἐνψυχον σῶμα , "besouled body", where "besouled" evidently stands for the attribute that distinguishes living things from the lower". (My stress - it also "distinguishes" living things from dead things). Aristotle, in 412^a13, writes: "Of natural bodies, some possess life, and some do not", using φυσικῶν τὰ μὲν ἔχει ζωὴν , but continuing "where by life we mean the power of self-nourishment and of independent growth and decay". And D.J.Allan notes (Aristotle, p.61): "Psyche, however, must in many contexts be rendered by "life"".

In fact, when we talk of animals and classify them, we assume "life", and "having life" entails "having a soul" as Aristotle suggests it means for him having the minimal powers of self-nourishment and independent growth and decay. But it is no part of Aristotle's doctrine that life is a thing that comes into bodies "from outside", nor that the thing-soul comes in from outside; nor is death a matter of either life-thing or

soul-thing leaving the body; and in a strict sense it is meaningless to speak of the animal as losing either life or soul. "X is potentially alive" or "X is potentially besouled" entail "X is not alive", "X is not be-souled". The only really convincing example of the potentially alive seems to be the egg or seed (or perhaps "fruit") and what seem to be Aristotle's criteria for being potentially alive are still accepted, however unwillingly, by biological science. Deep freezing of seeds to a point at which bio-chemical activity was held to be impossible challenged a special explanation of what over and above certain structures was necessary for "fertility" of seeds, but the test was, and is, finally whether or not seeds do or do not under certain circumstances grow. The notion of living tissues or living cells, which raise special questions not only of criteria but of the meaning of the term "alive", was not one familiar to Aristotle, though it is worth remembering that in De Partibus Animalium (643^a) he denies that any part of an animal is "either material or immaterial". In general he is concerned with traditional associations of soul with sensation and movement in the sense of the sensitivity of organisms and self-movement and growth of organisms, whatever may in fact have been the field in which his predecessors "applied" the concepts.

No one, I should think, has attempted to argue that it is life that lives, nor concluded from "x is alive" to "life is a thing which is in x and may depart". Nor has "life" been said to grow, or nourish itself, or sense or imagine or

reason - like soul, or mind, or consciousness, it can be said to "manifest itself" or to "be born into the world" or to "make its appearance in the world", rather as universals can be said to "instantiate themselves" or a genus to "perpetuate itself in its species", but these impressive modes of oblique speech either cash themselves completely in direct historical statements or they are meaningless.

If Aristotle is, as it seems, equating a "theory" ridden phrase - "besouled-body" - to an attribute term - "living" (we can note how "having life" is somehow intermediate) - he is equating it to an attribute term which (a) is an established and standard term, (b) is primary to the new science which he is establishing, and (c) is the basis of the "theory" which promotes or underlies the conventional phrase, then we can understand why he asks "Is the soul a substance?", "Is soul potentiality or actuality?". He is not in the position of a Descartes who, after years of established biology, is calling into question the biological use of "life" and "living" by asking "Is the soul a substance?" and answering "Yes", with the consequence that animals do not feel or sense or desire (as well as the other consequences noted in detail above). By "life" - a term which disappears from the vocabulary of a Cartesian - Aristotle adds, "we mean the power of self-nourishment and of individual growth and decay". And when he talks of soul he talks about, at the "bottom" and most universal and fundamental level, powers of self-nourishment and growth and generation. It is possible

that Aristotle had some special conception of powers, over and above what is entailed and only entailed by his mode of determination of powers, but any consideration of this possibility is subsequent to a recognition of true propositions whose subjects are plants and animals, i.e. members of the class "living things", and neither that class nor its familiar sub-divisions does Aristotle think it sensible to alter.

Growth, given existence (by encountering) and coming to be (a matter of observation), in the form of continuous becoming in relation to a specific form, is at least one of the accepted, if usually unspecified, criteria of recognition of animals and plants and of their distinction from non-living things. Becoming, as patterned change, is part of the being of living things, part of the essence, if we switch from talking about things directly to the use of technical terms which find their meaning in direct statement; it contrasts with their doing and suffering, their acting and being acted upon. The doctrine of substrate, in its different forms, together with potentiality and actuality, provides for Aristotle the justification for taking the existence of living animals and plants for granted, i.e. for accepting observation and fact-statements in science of organisms, and from such a point of view the elaborate doctrine of powers is an elaboration of what it means to say that a thing is a plant and alive, animal and alive, to be plant-ensouled and animal-ensouled. "Being souled", "having powers", is the most universal feature of living things in extenso. Descartes' argument is from "thinking" to

essence (without reference to classification), and the essence is universal since it has specific varieties or species which are powers or acts - there is no precision in Descartes' treatment. But the issue is as to what has the essence, an essence which Aristotle argues must be enmattered, and which Descartes declares is and must be and need not be, and while so is inexplicably so, while the "matter" in question presents all the difficulties I have discussed above. It is Descartes who claims that essence is substance, or "becomes" substance with the addition of "exists", Aristotle who denies that simple identification of essence and substance is possible. And it is Aristotle who can accept, as I have accepted, the conclusion of the Cogito as a fact statement, and can answer Descartes' own question "What am I that am a thinking thing?" with "You are a man, an animal, who was born, who eats and grows, senses and feels pleasure and pain, imagines and dreams and reflects, knows a few things and is ignorant of many, sometimes deceived by your senses, your imagination, and by your prejudice, as well as led into error by a gross abuse of the technical terms I did so much to establish as the vocabulary of a philosophy of the science which you refuse to consider".

2. What follows from the general argument is that Aristotle is claiming that the value of x in "x is a thinker" is "a man"; of x in "x is able to sense and feel" is "an animal"; of x in "x is self-nourishing" is plant or animal (and so 'or man'), born and not dead. I want to point in detail to three sections

which join the doctrine of potentiality and actuality and the doctrine of matter and form in leading directly and entirely to this conclusion.

(a). The first full statement of Aristotle's own position is in II.I (412^a).

"We are in the habit of recognising, as one determinate kind of what is, substance, and that in several senses, (a) in the sense of matter or that which is itself not 'a this', and (b) in the sense of form or essence,¹ which that precisely in virtue of which a thing is called 'a this', and thirdly (c) in the sense of that which is compounded of both (a) and (b). Now matter is potentiality, form actuality; of the latter there are two grades related to one another as, e.g. knowledge to the exercise of knowledge.

Among substances are by general consent reckoned bodies and especially natural bodies; for they are the principles of all other bodies. Of natural bodies some have life in them, others not; by life we mean self-nutrition and growth (with its correlative decay). It follows that every natural body which has life in it is a substance in the sense of a composite.

But since it is also a body of such and such a kind, viz. having life, the body cannot be soul; the body is the subject or matter, not that which is attributed to it. Hence the soul must be a substance in the sense of a form² of a natural body having life potentially within it. But substance is actuality, and thus soul is the actuality of a body as above characterised. Now the word actuality has two senses corresponding to the possession of knowledge and the actual exercise of knowledge. It is obvious that the soul is actuality in the first sense, viz. that of knowledge as possessed, for both sleeping and waking presupposes the existence of soul, and of these waking corresponds to actual knowing, sleeping to knowledge possessed but not employed, and, in the history of the individual, knowledge comes before its employment or exercise.

That is why the soul is the first grade of actuality of a natural body having life potentially in it. The body so described is a body which is organised. The parts of a plant in spite of their extreme simplicity are 'organs'..... we can dismiss as unnecessary the question whether soul and body are one; it is as meaningless as to ask whether the wax and

1. μορφήν καὶ εἶδος.

2. εἶδος.

the shape given to it by the stamp are one, or generally the matter of a thing and that of which it is the matter. Unity has many senses (as many as 'is' has), but the most proper and fundamental sense of both is the relation of an actuality to that of which it is the actuality.

We have now given an answer to the question, What is soul? - an answer which applies to it in its full extent. It is substance in the sense which corresponds to the definitive formula of a thing's essence. "

If this account is in English and approximates to what Aristotle was endeavouring to say, we have something (a) perfectly in accordance with the denial of extension to the soul, and (b) perfectly clear in its complete opposition to Descartes. It is still necessary to make some attempt to clear up the use of "substance" - ousia - here, but at least it is clearly stated that the being of soul, what it is to be soul, is to be potentially or actually a form of a matter, and the formed-matter is a living organism. An organism is a natural body which is alive, or which as alive exhibits soul-functions - and until we witness the actual functions we cannot tell whether the body is alive or not, though when the function is witnessed we can say "was alive" - the complicated entailment of life and function demands expression in terms of "potentiality".

Note, however, that we have only to declare that soul as ousia is also to de ti, a this or an individual, and we have Descartes' position.

(b). The quoted passage continues :

" (Being substance in the sense which corresponds to the definitive formula of a thing's essence) means that (soul) is 'the essential whatness' of a body of the character just

just assigned. Suppose that what is literally an 'organ', like an axe, were a natural body, its essential whatness would have been its essence, and so its soul; if this disappeared from it, it would have ceased to be an axe, except in name. As it is, it is just an axe; it wants the character which is required to make its whatness or formulable essence a soul; for that, it would have had to be a natural body of a particular kind, viz. one having in itself the power of setting itself in motion and arresting itself. Next, apply this doctrine in the case of the 'parts' of a living body. Suppose that the eye were an animal - sight would have been its soul, for sight is the substance or essence of the eye which corresponds to the formula, the eye being merely the matter of seeing; when seeing is removed the eye is no longer an eye, except in name - it is no more a real eye than the eye of a statue or painted figure. We must now extend our consideration from the parts to the whole living body; for what the departmental sense is to the bodily part which is its organ, that the whole faculty of sense is to the whole sensitive body as such."

Note the phrase "if the eye were an animal". The eye might itself be an organisation of organs - consider how we regularly find discussion of the lens, retina etc. as things with "functions" - but it would have, on the general argument, the power of seeing only if it were a complete and independent organisation of organs. For a perfect example of claimed independence of an organ, consider the womb of the Timaeus - "an indwelling creature desirous of child bearing" (9Ib.) Denied its desire, it wanders about the body and causes all kinds of maladies, cured by love and sexual union. This, of course, is the origin of the term "hysteria", and it is interesting that there were violent reactions to Freud's analyses of hysteria which made it a complaint of men, although those who found this nonsensical no longer thought the uterus was capable of wandering. Aristotle's doctrine seems clear and uncompromising. I have stressed above our difficulties in talking about organs because they can be treated as anatomical,

physiological, biological or psychological subjects. No one now wants to talk in literal fashion of the eye as seeing, but the tendency seems still plain, after a familiar dualist fashion, to insist on the anatomy, distinguishing this from the psychological, and by severing "power" from organism as well as organ, making it necessary to look for a special organ - the brain, something in the brain, the cortex, or a portion of the cortex, or an agent over and above and occupying these. Ryle's "ghost in the machine" or the ever-popular "switch-girls" exemplify the something over and above. Ryle and Aristotle are one here, to the extent of denying the machine-thesis.

(c). If we keep in mind the condition "if the eye were an animal", we can make sense of the passage from 408^b, which springs directly from Aristotle, i.e. there is no question of it being anybody else's doctrine.

"Yet to say that it is the soul which is angry is as inexact as it would be to say that it is the soul which weaves webs or builds houses. It is doubtless better to say that it is the man who does this with his soul. What we mean is not that the movement is in the soul, but that sometimes it terminates in the soul, and sometimes starts from it, sensation etc. coming in from without inwards, and reminiscence starting from the soul and terminating with the movements, actual or residual, in the sense organs".

For "with his soul" (the parallel obviously not being with "with an axe or tool", or "with timber") read "because he has the power which is exercised" or "through his power" - otherwise we get the difficulties I have suggested in connection with Descartes, that soul can act on body, body on soul, but it will be impossible to talk of "the whole" acting on either the soul or the body, and yet this mode of speech is

forced on us. For "terminates in the soul" read "results in the actualisation of the sensitive power", i.e. the man senses; for "starting in the soul" read "originates in an actualisation of the power to recall", i.e. the man remembers or imagines, either admitting of "the man tries to".

.....

It is not suggested that the new readings are made necessary by what is said in 408^b, which is a most difficult section even when we relate it to what has preceded in the way of discussion of "affections of soul" and their involving a body. What is suggested is that the new readings are provided by Aristotle's own doctrine, presented later and at least as a partial answer to the problems being considered as arising from facts which Aristotle regards as antithetical to various theories he is going to present and attack.

But prior to accepting or refusing to accept the readings, i.e. taking the section as it stands and as it occurs in order, we can, I think, see why Aristotle feels it necessary to deny that we can replace "a man" by "a soul" in the statement "a man perceives, imagines, thinks, is pained, is pleased, is bold, is fearful, is angry...." (it could be expanded to include a host of types of passion, emotion and activity). In 403^a-403^b (i.e. in the introductory section) he has pointed out that "affections of soul" (emotions, passions) seem to involve bodily changes or motions; anger, he points out, can be treated by the dialectician as "desire to return hurt for hurt", by the physicist as "the

boiling of blood or warm substance around the heart" .
 A house is "a shelter against destruction by wind, rain or heat", but it is also "stones, bricks and timber". But in each case an account which includes both pairs of definitions must be possible, and the concept of individual thing satisfies the demand: this house, any house, is a thing which is a structure or form of the matters, and qua form-of-matters it has the function of sheltering. Decay of parts is correlative with loss of efficacy in functioning - if the roof rots the rain comes in. If the house were an animal.....

What desires to hurt what hurt it, what desires to hurt because it was hurt, is an animal which is an organisation of organs, is a set of matters in specific forms and a form. Its anger is correlative with a state of motion in a part of it (and we can now amplify the account of "what goes on in" by reference to several sciences); but it is angry, it is hurt, and if it can it acts and hurts, and this is correlative with further changes and motions of and in its parts. What follows the quoted section of 408^b is the further recognition that as a man grows old his organs "decay" - if he recovered "the proper kind of eye" he would see just as well. Memory and love are like sight and sense in that a man loses capacity as the body ages; memory and love are "activities" not of soul, but of what has soul, the composite of form and matter, i.e. the living organism.

The Aristotelian composite is not a composite of substances, not an intimate union of things. Aristotle thinks

there is a special problem of nous, and he is in difficulties with his theory of perception, which is presented in part as an attempt to explain what goes on when a man looks at a thing before him, a thing which may be a substance like himself, namely another man, and in part as an attempt at theory of knowledge. Of this there is much that needs to be said. But the difference between Aristotle and Descartes is that the first comes to deny that that soul is a substance qua individual existing thing capable of act and passion, while the latter conceives the philosopher's task to be that of proving what is known to be true - the soul is a substance as individual existing thing capable of act and passion, eternal and so lifeless as well as deathless - to be necessarily known to be true.

According to Aristotle, the dialectician can do geometry and a sort of geometry of soul, talking only of desires and passions and acts etc. without mentioning what they are of. Descartes is such a dialectician, as are his successors. True, they claim existence and substantiality; they add "existence" to a conceived agent and to the desires, acts etc. in order to get truths and necessary truths. But, as I have shown, to such an agent the question which is then asked is meaningless, viz. "How are the two sciences related?". It is meaningless because all is known. Once, however, the delusion has been surrendered that surfaces are solids, that solid geometry is physics or becomes physics with the addition of "exists" as a

predicate to geometrical bodies as subject, that irregularly formed bodies are of no importance to science or to philosophy, the question is meaningful and answerable, and the answer that Aristotle gives is his answer to "How is soul related to body?", namely "the dialectician is a man, a living organism the body of which, in its structure of parts and states of parts, is described by various sciences, and which qua organism suffers and acts in ways which are listed in the dialectician's abstract science".

Such men, ceasing to do only dialectic, can do natural science as well; and by using, as Descartes recommends, all the capacities that men have, they can come to give an account of many things, including themselves. "Soul" and "figure" are in like case - neither is substance qua individual, and no instance of either is directly an instance of a substance qua individual, though without being an instance of either figure or figure-and-soul no individual can exist. It remains only to add that while geometrical figures exemplify classification demands, it is non-geometrical figures that are forms of existing things.

3. Such human scientists can, protesting the truth of their observation statements, classify organisms in a variety of ways; they can confine their attention to statements which permit of an existence-claim on the part of the subject, since only existing organisms are of interest to them; they can consider the actions and capacities of such organisms and their interrelations, producing a hierarchy of powers; and by

relating organisms to the hierarchy of powers they can present a hierarchy of organisms, placing man at the top because he can do science, and lesser animals cannot. Any extended classification will demand terms which are more general than other terms, to designate classes which include other classes which yet again include classes; the class relations can be stated syllogistically, using "all" and "some" as quantifiers, and the classificatory structure can be said to depend upon, or be equivalent to, or be justified by, a complex of syllogisms.

If, as Aristotle did, such a scientist develops a propositional and syllogistic logic and a theory of classification which clarifies his principles, and especially if (as was the case with Aristotle) he has to argue against previous logical and classificatory theories, he must encounter certain problems. First, while it is his study of individual things, of this or that existing thing, which justifies him treating his predicate terms as meaningful and making the existential claim which itself justifies the second step in his classifying, his classificatory system will contain no mention of this or that individual. Second, the members of his classes, qua individuals, are not related in a hierarchy, but are "horizontal" - they are spread out on the earth which supports them in time.

Syllogistic logic, as Aristotle presents it, reflects this, since it includes statements about all things of a kind and some things of a kind, but not individuals qua individuals. Yet any statement of the form "All x (or some x) are y and there

are no xs" removes x and xs from natural science and from classification; and no examination of an individual which is completely isolated from all other things - admitting this to be possible, and that sensible qualities can be noted under the conditions - will reveal "catness" or "animality". Both predicate terms apply to a host of distinguishable things, yet they seem to be "conceptual", not perceptible in or on any one thing, and their relation (which is necessary) is not revealed by any thing which can be said to be both or which can be said to be one and not the other. Hence the Platonist thesis that in classification we are concerned with such concepts and their relations of containing and excluding; classification is by dichotomy of concepts. What has logical priority is the widest universal concept. "Animal" is logically prior to "bear", "lion", and both are logically prior to "a bear" or "a lion" and to "the or this bear" etc..

The full strength of this position is felt when we reflect that our characterisation of any individual, a characterisation necessary for the distinction of any individual, is "a ϕ " or "the ϕ there", or "this ϕ ". But it is still possible to recognise this, and to maintain that ϕ is not a member of a species, a thing alongside this or that ϕ - animal is not an animal or a species of animal alongside lions or a lion. An Aristotelian is able to treat "animality" as "naturally posterior" or "logically prior", able to treat the individual as coming first and in fact alone coming at all in the order of nature or existence. "There is a ϕ " is true and is discoverably true, and knowledge (if "this is a ϕ " is known).

is identical with what is. It is not suggested that these questions will arise for the scientist qua scientist; but the logician can, considering them, conclude that a genus term, and any class term, will have both extension and intension if it is a term in natural science, and this is really equivalent to asserting that what has "priority" is not the universal and not the individual, but the proposition, the meaningful assertion, the situation as it can be truly described.

Once this is recognised, we can cease talking about universals as objects or things known and talk about universal terms in discourse, and a study of classificatory investigation helps to show us how terms come into discourse and operate in discourse (and so in science) as well as what complicated procedures of distinguishing and relating are involved in "learning a new term", bringing it into a portion of a language already (if roughly) known. Whatever Aristotle has to say in his theory of knowledge or of nous, this sort of consequence follows from his logic and his theory of classification - and in so far as natural science is knowledge, theory of knowledge and of nous must finally accept it.

If Aristotle's Categories are derived from natural science and are consequent, as I claim, upon the logic and the theory of classification, and if the doctrine presents an attack upon the problem of Being, it must be compatible with the logic, the theory of classification, and natural science; and in fact it is part of the "filling" which relates the former to the last. Nor is it difficult to see how it begins.

What is difficult is to see where it ends, or should end, or can end; and this difficulty produces the question "On what principle can the categories be ordered?" as well as the question "On what principle can the list of categories be termed complete?" Neither of these important questions am I going to answer. I want now to consider what follows from a Cartesian assumption with regard to Reality and a thesis regarding categories advanced in opposition to Aristotle, and then to consider all too briefly the Aristotelian position, with some mention of interpretations of it. The Cartesian "exposition" is provided by J.S. Mill.

Categories.

Mill, doing metaphysics in Cartesian style in his Logic, reduces the world as agent to a potentiality of causing sensations, and the mind as patient to a permanent possibility of being affected by the potentially affecting acting upon it. To him this is metaphysical and rather mysterious, but philosophically indubitable. To an Aristotelian it must appear as philosophical and logical imbecility.

His conclusion is reached in Book I. Ch. III, a chapter which begins with a list of Aristotelian categories which he insists are "things denoted by names", "Existences", "Summa Genera" - and therefore "highest Predicates". He characterises them as "a catalogue of the distinctions rudely worked out by the language of familiar life, with little or no attempt to penetrate, by philosophical analysis, to the rationale even

of these common distinctions", and he insists that "feelings, or states of consciousness, are assuredly to be counted among realities, but they cannot be reckoned either among substances or attributes". It is suggested that these might be placed "by the Aristotelian school" in either actio or passio, and rightly so in the case of such as are active in relation to their objects, such as are passions as to their causes, but wrongly so in respect of "the things themselves, the feelings or states of mind". (My stress - it does not strike Mill that calling "feelings" both things and states, whatever they are of, suggests a problem).

Calling Habitus, Exist, one of the Summa Genera, is for Mill "manifestly" incongruous. But equally manifest, one would have thought, is, if we are classifying "existents", that we should be talking of infima species rather than summa genera, and Quantity, When, and Where at least seem as manifestly not infima species as does Habitus. This might lead us to suspect that what Aristotle was doing was not classifying "existents", but it raises no such suspicions in Mill. For him Aristotle is clearly trying to classify all the things that exist, and doing the job badly; though he goes on to suggest that "thing" is not a suitable word (it suggests the things classified in natural history), nor is "substance" (it excludes "attributes"), nor is "being" (which is by custom synonymous with "substance"), nor is the barbarous "entity" nor its associate "essence".

Mill is not at all perturbed by the fact that his "feelings" are (i) realities or things, (ii) states of mind,

the latter being a substance (and "unknown", so that that the states are of it is likewise "unknown"), and (iii) themselves classifiable into "sensations, or any other feelings and states of mind, as hope, joy, fear; sound, smell, taste; pain, pleasure; thought, judgment, conception and the like", while (iv) each sensation is of something, each feeling is of something, and thought, judgment and conception are not states in the sense that the feelings are states, and are of in a different sense from that in which feelings are of.

What is Mill's procedure? After confessing that he cannot find a suitable word for obliterating all category distinctions, though he finds the concept of "denoting whatever exists as contradistinguished from nonentity or Nothing" transparently clear, and having rejected natural science and its things (which contrast with gods and centaurs as nonentities, if they do not with such pluralities as Nothing), he simply re-writes Cartesian doctrine, substituting "Feelings or States of Consciousness" for "Les Pensées", the varieties or modes or façons of thinking. Feeling is a genus of which Sensation, Emotion and Thought are species. We drop straight into the Cartesian morass: what is meant must be explained by reference to we and what we think and feel, or the states we specify by "I am angry", "Mary is content", "John feels afraid"; all such verbs are to be replaced by "am (or is) conscious of", and the explanatory statements are reduced to adverbial clauses - "Thought includes all that we are conscious of when we are said to think" (my stress); thoughts and sensations are (both, similarly or differ-

ently?) of, but what they are of is not to be included in the thing named "thought" or "sensation", which is "what passes in the mind itself", though we can only "denominate" the sensation "from the object or from the attribute which is excited".

Mill's criticism of Aristotle's list that the terms are not exclusive since, for example, act, passion and situs may involve relation, certainly holds if Aristotle is claiming to present "completely independent things"; but Mill's plain realities seem to be created and sustained by relations, can be denominated only by or ~~through~~ relations, and cannot be "known" apart from relations even if they can be "known" at all. What Mill's precise philosophical analysis apparently demands is that for "I thought p" we should substitute "there was a thought in my mind and the thought was related to me by awareness, to 'p' by of, and to mind by "in", while for "I sensed X" we should write "there was a sensation or feeling or state of consciousness in my mind itself to which I was related by awareness and which was related to what X is of by excitation"; and both statements seem to come under the Aristotelian categories. They have the form of a complex whose component statements are categorially distinguishable - the difficulty is that while they have the form the matter or content evades us; what needs to be done is to show that there are intelligible statements as components.

Without a conventional (non-technical, familiar discourse) use of "I" and "we" there seems to be no structure to the "stated" situations; with such a conventional use the "objects"

are nebulous, seem certainly not "independent existences" in any sense, and their relation to "I" or "we", like that of "I" or "we" to the mind in which they are or of which they are, seems impossibly to be "aware of" in any sense. Either the relation fails to relate (we cannot give a meaning to "of" and "am conscious of" or "excite") or one term of the relation seems missing - whether the subject or the "exciting object" at one level, whether the thing "said to think" or the "state of mind" at the other.

Mill's talk is Descartes' double-talk, Berkeley's double-talk: I am a soul who is aware only of ideas occasioned in my soul-self, I am a man who wears coats and drinks wine. So we read: "...part of our notion of a body consists of a number of sensations of our own, or of other sentient beings, habitually occurring simultaneously" (It is manifest nonsense to include habitus as a category? Like the "non-wildness" of sense-data, habitus is our only guarantee that described bodies or their causes exist); we read "that my conception of the table at which I am writing is compounded of its variable shape and size, which are complex sensations of sight, the tangible form and size, which are complex sensations of our organs of touch, and of our muscles." So we come to realise why the categories do not work for Mill. He has very little idea what we want to say, and less idea how to say it. He takes for granted an Aristotelian world in which Mill is a man, like and unlike other men, like and unlike other animals different in kind but philosophically unmentionable; he is a man who sits at tables (situs, relation), who writes (act)

as he looks and sees, listens and hears, touches and feels; who feels pained and pleased, hurt and delighted; to whom things seem and upon whom things act by impact and by arousing attention and desire - making him continue looking, handle and want. He takes for granted (or as proven) that there are only mind-substances and body-substances, and with the transition from I-Mill to I-mind he achieves a world which is to be described (if that is the word) only in terms of feelings and states of consciousness which are things mental and within mind, and another world which is what the feelings and states of mind are of. In the language suitable for describing this "phenomenal world" the mind-world cannot be described at all; the phenomenal world is unreal in relation to the real mind-world or the real (unknown) body-world which is causally related (how?) to the real mind (not its contents?) and thus occasions the states or feelings and their of-ness. Philosophers (says Mill, including Kant) have taught him that "all we know of objects is the sensations which they give us" (my stress). Men, and philosophers, are such objects, and none of them are agents in the "real world".

The real world is completely described in fact by a conjunction of "unknown" or "unintelligible", a failure to mention what does not know or understand, and a set of category terms, viz. substance, relation, act (or causal act), passion (passive affection), potentiality and actuality. What we have is metaphysics pushed one stage beyond what I condemned above as bastard statements in which technical terms are "related" to non-technical terms, to the formulation

of statements which contain only technical terms and which need to be disguised with "mind" and "body" before there is any possible pretence that anything is being described.

What of logic, meanwhile? In section 11 Mill insists that of indicates relation, and in effect he denies the distinction between substance and attribute by treating the technical "attributes are of a substance" as an ordinary-language statement of relation between things - "mental things", doubtless, or what mental things are "of". The result is thus to banish predication; the "is" of identity replaces the copula - any fido is the fido it is, Nominalism permits us to name a fido Fido, and confusion permits us to treat Fido as a class name for individuals which resemble one another and differ from members of other classes, so that predication can be used after all - and if we continue to analyse things into their "complex predicates" we conclude with the named subject as the merely named, the merely related-to-attributes thing.

Named things, qua attribute-things, are analysable into simples, which can be related into complex things which can be differently related, spatially related, to other complex things. It being assumed that these things are different in kind, philosophical analysis presents us with an account of what thought is (though the thoughts can be denominated only by what they are of, thought-elements by "the attribute excited" or "the object that excites the attribute"); with an account of what the world really is (under the same conditions as for thought); with an account of what minds contain, both as thoughts and what they are of. These correspond roughly

to logic (relations of ideas, or laws of associating ideas in terms of what they are of); to psychology (mental elements and powers to related - see logic); and ontology (what thoughts are of qua elements, becoming phenomenal science when acted upon and related so that thoughts are of a natural world).

Aristotle's Categories.

However we "arrive at" our phenomenal world, in that world Aristotle's category distinctions can be made in terms of the constituent accounts of things in that world. The list given by Aristotle in the Categories is not completely consistent with the lists given elsewhere - and this indicates some uncertainty as to the principle of listing. The terms, as Mill claims, are not exclusive, and may not have been intended to be. But how does Mill know this? Because he knows that a man cannot push without pushing something, sit without being related to what he sits on, and Aristotle was perfectly familiar with both impossibilities. They belong to his world, though not to Mill's category-ridden metaphysical world.

Granting this non-exclusiveness, the chief issue with regard to the categories is as to what the list is supposed to convey, i.e. as to what categories are. Ross refers to them as "the main divisions of being", a phrase which I find difficult to understand and difficult to relate to Ross's discussion of the Categories; and I find the same true of his alternative "general aspects of reality". I shall give a possible meaning to such phrases below, without being at all sure that it is

particularly close to what Ross means. Ross's argument that the terms are called "categories" because "substance" is the ultimate predicate of an individual such as "Socrates" seems to me completely futile, since it entails that if substance is a real predicate then to say "Socrates is a substance" is to say "Socrates is a predicate", which Aristotle would certainly deny, and if "substance" is a technical term it is meaningless to say "Socrates is a substance".

What seems to be the case is that all the categories are technical terms, and cannot be regarded as class-names for "existences" - the penalty for taking this view is that all are names for things, and the members of the classes have to be related by denying that the categories are class-names for things.

What I have argued above is that the distinguished categories can be regarded as classes of terms which do function meaningfully in discourse, but that they are better regarded as classes of statements which permit of an existential claim on the part of the subject. I have recognised that at the most general level of logic, where only the distinction of subject and predicate is required, it seems plausible to argue that all the category terms except substance (which remains on the subject side of the proposition) can be grouped as "predicates"; but this, resulting as it does in the confusion of "attribute" with "predicate", and the further confusion of substance as a category term with subject, which is purely logical, need not be accepted as it stands, and the consequences can be avoided if we recognise a distinction between the log-

ical and the metaphysical, and recognise the priority of the logical. What I want to show is that such a position emerges from Aristotle.

If we take any list of the Categories - Substance (Ousia) Quality, Quantity, Relation, Activity, Passivity, When, Where, Position, Habit or Disposition - there is no difficulty in indicating a host of distinguishable individual things of which questions corresponding to all except the first can be asked and answered, both question and answer being in non-technical language. Considered as a statement, and as either true or false, each statement will have a subject and a predicate, so that the logical distinction is common to them all. So, too, is the copula, a special use of the verb "to be", which (whatever Aristotle's position) draws our attention to the absence of "Being" from the list.

For all predications, the logical relation of the predicate to the subject is copulation. In no predication is it intelligible to say that the subject is the predicate, and the predicate is related to the subject only in the logical sense, a sense completely different from that in which spatio-temporally distinct things are related. My restriction above of "category" to "classes of statements" shows its use in presenting the results of analysing statements in comparison with each other - we are concerned with distinctions and classification of statements or propositions, not with grammatical or "philosophical" analysis of isolated statements or propositions.

That Aristotle is concerned with predications in ordinary language is patent in the Categories if we look at his tech-

nical statements and at his examples. However obscure and complicated we may find that piece of writing, it is apparent that statements like "this man is human", "Socrates is sitting", "the horse is white", are being considered and discussed; the distinction between terms and phrases (simples) and sentences (complexes) is fundamental by Aristotle's specific statement; and the criterion for "substantiality" is "cannot be predicated of a thing, but can have predicates". Aristotle, then, is concerned with distinctions over and above the logical distinction of subject and predicate, in propositions, and not with a logic over and above the propositional, nor with things which exist over and above the classifiable world of the things of natural science, these things being what are instanced as subjects of the requisite kind and so as substances.

What characterises the treatments of Aristotle's categories cited above, and many others, is (1) the complete ignoring of the logic, and the substituting of another, (2) the complete ignoring of natural science, and the substitution for all or some of its terms of technical category-terms, with a special treatment of substance as category-term, real-term, and class term for "minds and bodies". It is no accident that in contrast with Aristotle's biological natural science, in connection with which (a) our notions of individuals, (b) classification and all the related terms, genus, species, differentia, class, member etc., and (c) syllogism, and all related technical terms, present only the difficulty of learning a set of sciences, whatever is the case outside this field, the Cartesian rejection of animals as subjects of

whole classes of statements accompanies a rejection of syllogism (except in pseudo-proofs of desired "truths"), of classification (as fruitless - Descartes has mixed attitudes here, which cannot detain us - perhaps, but certainly irrelevant to metaphysics and minds and bodies), and of predication, although the technical terms and necessary truths, as well as the relevant criteria form "substantiality", derive from Aristotle.

To claim that substance, quality and relation are really class terms for substances, qualities and relations which are "things", "beings", "elements of reality", "entities", "ontal elements", is to obliterate the very distinctions Aristotle is concerned to stress, and one immediate result is that "relations" (which in ordinary terms cannot be stated without two substances) have to be treated as things which relate other things, as things between other things, or as things over and above other things. I do not wish to elaborate this, but it was made clear in the discussion of "adhere" and "inhere" as relations of attribute and substance, in the discussion of simples as ideas or elements of reality, and in the discussion of the nature of thought, how peculiar the treatment of relations is; and while in Empiricism generally we find the treatment of relations as somehow mental and distinct from elements, we can find the "ontological" issue in its most virulent form in Bradley, with his dreary juggling of category-terms in the first chapters of Appearance and Reality.

For an Aristotelian there is no special problem attached to our use of "have" in "Subjects have predicates", or of "belongs" in "A belongs to all B", or of "relation" in "the copula relates subject and predicate", since we are concerned with technical terms entirely, and these are given a meaning by reference to predications in a natural language. It matters little, likewise, what additional technical terms we use in order to speak about subject, predicate and copula, i.e. as a common term for the distinguishable trilogy-in-relation, so long as we recognise that we are doing logic, and not moving upwards to a new understanding of natural science or "what really exists". And the same is true of any general term we may devise for other distinctions as a class - what we need to know is where and how the distinctions are or can be made.

To sum up, the repeated stress on predicability as the criterion for distinction between the first item and any other item on the list, the use of familiar-language examples, and the stress on parts of speech, indicate that Aristotle is working within the field in which the logical distinctions he recognises can be clearly pointed to. Thus substance is distinct from any other category term, and each of the other terms is meaningless except in relation to substance, and this parallels the situation of subject and predicate if types of predicate or of predication can be distinguished. From this there arises a special problem with his use of ousia, which appears to be a predicate-term "denoting" kind and essential kind.

My main task is now to show, all too briefly in spite of my discussion of related issues above, that the problem arises in many contexts for Aristotle, and that his solution represents his solution to the Greek question of Being, i.e. What is it that can be said in a full sense to be?.

Aristotle's answer is "an historical individual", and the answer is demanded by his logic, his classification and his natural science. It is given in different ways in different contexts, and requires for its understanding a knowledge of a set of Aristotle's technical and correlative terms. The answer that comes from the Categories is: "Only an individual can be said to be, and any individual is of a kind." The logical presentation of this takes the form: "What can be said really to be is that which is not predicable of any thing, but can be subject of predicates." The classificatory doctrine is: "What exist are individuals which are members of an infima species, though at a "higher" level they are members of a higher and higher classes, and this enables a definition to be given." Thus definition and essence are related to ousia via the class-name and membership of the class, the primary class-names being those of "natural classes", which are already recognised in the language Aristotle has learned from others.

What corresponds to "is a member of" is the technical term tode ti, the "this" which converts an infima species term into a member-of-species term, and which Aristotle relates to ousia: we shall see below the importance of this, and why

Aristotle speaks of "ousia in the sense of" in the De Anima. If we have organisms in mind as clear instances of individual things, if we remember Aristotle's examples, the doctrine of formed-matter will present us with the conclusion that what exists in the full sense (as actuality) is an historical individual, and to be such is to be an enmattered-form; and this is related directly, and indirectly via eidos and logos, which are themselves related to enmattered-forms, to an attack on both "formalists" and "materialists". Equally the doctrine of potentiality and actuality "applies", since to be an historical individual is to be a thing-becoming, and a thing becoming in a specific way characteristic of the thing of a kind as of its kind; and intermittent acting in various ways and so being potentially a particular kind or kinds of agent is a further necessary feature of any living organism, at least above the level of plants.

Further, while syllogism needs no individual propositions, quantification in the form of "all" and "some" in natural science demands existing individuals as subjects (and members of classes), these members are characterised in a classification only by certain predicates and they themselves are not specifically mentioned; while along with "all" and "some" and relations of implication go arguments which result in our distinguishing definitional predicates, *præpria* and accidents, these distinctions being meaningless unless all types of predicate can "belong" to an individual.

If we look again at the Categories listed, tode ti is

implied by the doctrine of non-predicability, which determines a thisness in relation to ousia, but the thisness is to be stated in terms of *ubi* and *quando* - to exist is to be somewhere somewhen. And this, I have argued (developing Aristotle) entails being related to other things, while (for organisms) it also entails acting and being acted upon, the developing individual being "sustained" by the complexity of things, relations and acts.

Whether or not this notion of "sustaining" is directly Aristotle's is not important, but it must be stressed that when we cash it in detail we find ourselves involved in saying not only that no individual could in fact exist independently of other things but that it is logically impossible for this to be so, rather as it becomes logically impossible for an organism to exist without being an organisation of organs. Once we recognise modes of acting, which require natural objects, to be included in the definition of organisms of different kinds, we have made it logically impossible for those kinds of organism to exist independently of the objects of their acts. Consequently, if we recognise organisms as individuals and as things (res), it needs only the definition of "substantiality" in terms of "absolute independent existence" - or of "simplicity" - to make it necessarily true that no things are substances. Res sive substantia becomes a complete disjunction. For Descartes, as I have stressed, res sive substantia functions as an identification of the meaning of two terms, but he insists on both the special criteria - absolute independence and simplicity - and the

result is that organisms cease to be either res or substantiae - they have been defined out of real existence. For Aristotle, res sive substantia would indicate an identification of two terms, and the meaning of the identity is through res and individual, and the possibility of pointing to individuals of which organisms are at least typical examples. Such individuals fall outside neither language nor logic nor existence.

It matters little whether we call the variety of category terms "minimal concepts for considering the organic world or a world which contains organisms", or speak as I have preferred to do of classes of statements members of which are necessary for the account of historical individuals. It is even possible that Aristotle was chiefly concerned to assert the validity of a class of statements which could be made about organisms or a sub-class of organisms - much depends upon the precise values we admit to "act" - but all the categories he lists "apply" to men, and on his general arguments it would be nonsensical to deny that our account of men should include act-terms or agent-terms. If we can give a meaning to individual in the "inorganic world", and so in a science of the inanimate, on finding that such individuals are never agents we must exclude "act" from the categories relevant to that science. Nevertheless we can justifiably claim that such issues are subsequent to our determination of categories in relation to organism-agents.

Logic, Classification and Substance.

Whatever may be said about the members of the list of categories, any such list will, on an Aristotelian view, contain "substance" - and substance is my main concern. A logician, accepting syllogism, a classifier concerned with classes and relations, if they recognise that the arguments or classes they are concerned with are related to natural science, will recognise the existence of individuals, will recognise that a particular science whose true statements they are concerned with will pay attention to individuals. Can we move directly from this to "substance" as "individual"?

Consider statements like "some apples are red", "red is a colour", "Achilles acted bravely", "courage is a virtue", "squares are rectangles", "tables are square". Colours, virtues and rectangles may be classified, as may apples, heroes and tables. Colours, virtues and rectangles may be subjects of statements as well as predicates. "Virtue" may be predicated of "courage", "courage" (in its adjectival form) predicated of "a man". And clearly there is a sense in which courage can be said to "exist in actuality" only when someone acts courageously; red to exist in actuality only when something is red. "The box is red, red is a colour, therefore the box is a colour" produces nonsense - and it is logical or metaphysical nonsense. It is so clearly nonsense that no one would take it literally - "is a colour" would be understood as "is either red or blue or.....", or as "has a colour", or as "is coloured". No one is going to be misled by it - only a philosopher would

would have any reason to bother about it.

If we confine our attention to statements like "roses are red", "balls are spherical", "children fight", the distinction between individual thing and quality or act seems clear, and we are not at all disturbed by the complex background of things and relations against which the situations indicated by the statements are isolated by our interests. The treatment of "substance" as the individual - a rose, this ball, that child, the singulars which give meaning to the plurals - seems clearly justifiable. It is brute fact that any given individual has an account which is exhaustible only at the limits of our immediate knowledge or our immediate language.

This prompts one philosophical claim that threatens a simple identification of "individual" and "substance" as subjects of a class of true statements. Individuals, it is pointed out, cannot be "known", and if they cannot be known, they cannot be known to be subjects of propositions. And in this sense of "know", viz. "completely known", "having an exhausted account", it is obviously true that they cannot be known. But having said this, we have said all that needs to be said. Recognition and identification of individuals, in any one of a variety of contexts, does not demand "complete knowledge", and it is recognition and identification which provides a basis for noting qualities, acts and relations, and so for the propositions which, in an incomplete system, give meaning to "complete knowledge". There is no call to

say that there must be things completely known, since otherwise "know" is meaningless, and then, accepting the established distinction of substance and attribute, claim that attributes are "known", the "substance" really unknown, and at the logical level predication is either meaningless or completely misunderstood by those who use it. I insisted above on the validity of the terms "discriminating" and "recognising", as I insisted on "giving an account of" and "discovering or observing such to be so". As activities of scientists (seekers after knowledge) in a world which contains other men, other animals, plants and coal mines and carbon molecules, these produce facts and theories, veridical statements and accounts, including accounts of men doing science.

Here "what we know" can be stated, and our talk of statements, propositions, subjects and predicates, substances and attributes, individuals and their kinds, given a meaning without pre-supposing something over and above the accountable. Questions of "what we really know", of what we really sense and perceive, are subsequent to this, not prior, even if we pose them as "under what conditions are discrimination and giving accounts possible?", and considerations of this have been, I have argued, tortured beyond recognition by the conversion of "what do we really perceive?" into "what do minds really perceive?". Special "objects of consciousness" so "conceived" are immediately "inserted" between minds and non-mind substances, both "unaccountable", and I have tried to

show in detail above how the various attempts to designate the "objects" by a category term and to argue via category truths to something beyond the "objects" collapse. The most general designation of the "objects" as "qualities" or as "attributes" produces (a) the thesis that propositions need no subject-substance, but are relations (in a special sense) of predicates, and "things" are really collections of attributes, (b) that propositions must have a subject-substance, but this is never known, and (c) that all propositions really have a subject, and one subject, namely Reality. These are not "on the same level", except that they all presume to take us below the level of propositions and accounts in natural science, to show us what our accounts and statements in our accounts "really mean", and all employ category terms and assume that those terms have the same meaning or function at the "lower level" as at the "ordinary level".

Accept it, however, that our account of X is a set of true statements which admit of logical distinctions, it is possible to make distinctions between the component statements and to classify them, and to note the structure of the account. General features of such accounts enable us to expand an account by question and empirically found answer, as general terms in the known account permit expansion through our knowledge of the terms. The role of categories is not that of "universals". But equally the role of universal propositions is different from the role of individual propositions, and "this apple is red" is logically different from "this red is a colour", although any apple that is red must be

this red or that red, i.e. a particular red. The difference cannot be stated, as a result of comparing the two statements, in terms of subject and predicate, since "red" is a subject of its statement in the second case. Nevertheless the difference is clear, and is reflected in common usage - though not in the usage of "substance" and confusedly in the usage of "thing".

(a) "All men are quadrupeds", "All men are rational animals", "All reds are colours", appear to be logically similar propositions, and each can be the major in a syllogism. Each proposition, moreover, is incipiently classificatory, and on my general argument each could be held to entail an existential truth, "there is a man", "there is a red"; "there is a quadruped", "there is a rational animal", "there is a colour", follow with conversion. We can, and do, talk of particular or individual reds, particular or individual colours - we can put "this" in front of any of the terms. Converting adjectives into abstract nouns³, verbs into gerundives, prepositions into abstract nouns, we can classify under the gross heads of qualities, acts and relations, doing something similar to and different from classifying numbers, geometrical figures, opinions, cricket performances, virtues and vices, or motives for murder. If we put "this" in front of any such noun, we have something individual which (as a term) cannot be predicated of anything, but which can be subject of a proposition.

The consequence is that any act, relation, quality... is an individual, and seemingly, in Aristotle's sense, a substance. But the consequence is also that any act, relation

or quality (as a reality) is predicable of a thing and any such term is meaningless unless so predicable, and with the recognition of this Aristotle's distinctions re-assert themselves. I am not going to consider especially what terms other than act, quality and relation are further required, nor logical difficulties held to follow from the treatment of a relation as predicable of a thing; my concern is with substance and subject, and the validity of certain distinctions whatever others may be possible or necessary.

If we give a meaning to " $(\exists x) x$ is an act" it seems to follow of necessity that " $(\exists x) x$ is an act entails $(\exists y)y$ is an agent". From " $(\exists x) x$ is a quality" the conclusion is to thing or substance instead of agent, though an agent will be a thing or substance. What we seem to have is a set of necessary truths whose terms are variables, closely related to "any predicate must be of a subject", or "whatever is said about must be said about some thing". Aristotle's position depends upon being able to show that there are values of x which cannot be values of y , and as well that there are values of x which can be distinguished and classified as such values, without the relation of x -value and y -value being destroyed.

In fact-statements about organisms we can find a justification for all the claims; in fact-statements about common-place things we find a justification for most of them. Mill is perfectly right: when you talk of classifying things, substances, entities, essences or existences you

suggest that you are talking about classifying trees, birds and beasts, not yet exploded into fragmentary mysteries by philosophical analysis; and any one of these "things" is the subject of types of statement corresponding to all of Aristotle's categories.

(b) Corresponding to the degree differences of universality of man, animal, organism in a classification of living things is the degree difference of universality of scarlet, red, colour. Red is less universal than colour, is a particular colour - and there are many particular reds into which "red" can be divided, while there may be any number of instances of any particular red. Yet it is possible to accept the statement "You cannot point to any red without pointing to a thing which is red, since colours are only qualities of things". The things may be ribbons or flowers or pillar boxes.....the reds which exist will be ribbons or flowers or

This last use of "reds" indicates that if we designated things in terms of their colour or redness, instead of in terms of function etc. as ribbons and flowers and pillar boxes, we should have a class of reds logically similar to what we have now with a class of flowers. In fact we do "name" things thus in special contexts, with billiard and snooker balls, poker chips, children's teams in question; but otherwise it indicates distinction and similarity (i.e. discrimination) and is an attribute term. If it were a substance-term, so that it would be true to say "any red you encounter will be

a pillar box or a ribbon or a rose", we could no longer use "red is a colour" in its present sense. "Colours" would, in the new usage, be identical with what, in our present usage, we call ribbons, flowers, roses and motor cars, i.e. substances qua things.

The question that concerns us is not of the possibility or advisability of such a change, but of what is involved in such a change, and what is involved can be recognised and stated in terms of substance and attribute, although it cannot be stated simply in terms of subject and predicate. "Red" can be the subject of a predication in our present usage, but it is not a substance; and the difference is indicated by distinguishing the type of proposition of which it can be a subject from other types of proposition or by using the technical term "quality" of "red" or "redness".

Relations and acts are in somewhat similar case, since these also can be subjects of statements and classified. But once we move beyond quale, or the confusion of quality and attribute with predicate, and pose the question of the possibility of replacing our general nouns by act-terms and relation-terms, the project seems almost lunatic. As I pointed out at length above, if we pose the project as re-writing statements in ordinary language, replacing our nouns by "thing of this or that kind", the re-writing seems possible, and to make no difference to our account of "the world". But the full project is not to characterise "a thing" by the use of "is so related to a thing such that" or by "which so acts", but to alter the logical and grammatical

force and function of verbs and prepositional phrases so that they have the force and function of nouns.

It is easy to convert them into nouns by denominating them acts and relations - the Highest Kinds of Things are Substances, Qualities, Acts, Relations. But with these nouns nothing can be said until they have been accepted as differently nouns, and the declension via logic (subject and predicate) and metaphysics (types of predication) concludes with fact statements made and understood in ordinary language, and justified or verified by accepted techniques. The "world presented by" stating existence-entailing facts is not a world of substances and of attributes and of acts and of relations (and forms, stuffs, structures) but of substances which are structured of forms of stuff - whatever details investigation may supply -, which are qualified, do act and are related, if they can be said to act. To present that world in detail we need all the resources of our language, not one part, and all the resources of science, not simple conceptions.

(c) The use of abstract nouns is sufficient to make it plausible to ask "Does a such exist?". But once again, " \emptyset ness exists" can be given a meaning by "If $(\exists x)\emptyset x$, then \emptyset ness exists" for any type of attribute-term. If it is this which prompts the claim that attributes exist in a different mode, or at a different level, from that of substances, or the claim that categories designate not realities but levels or aspects of Being, there is no difficulty in understanding "modes of existence" or "levels of reality". We do not need to say

"a table exists in one mode and squareness exists in another mode", with a consequent impossibility of tables being square unless there is a third mode of existence which is both and neither of the others. Aristotle was aware of such a position - the argument suggested is a version of the third-man argument directed against the Socratic forms. " $(\exists x)\phi x$ " can be treated in natural science as equivalent to " ϕx exists", and this is a formula for matter-and-form or subject-and-predicate or the union of both in an account of the x in question. We must stress, however, natural science and the historical character of matter-formed and thing-of-a-kind; we are not concerned with possible or imaginary or conceptual universes from which we exclude by fiat men and other organisms, universes consisting of "one sustained sound", "a self-conscious mind", "a point-instant" or "triangular particles" - to give only four "philosophical instances".

(d) The quantification requisite for syllogism in natural science, the plurality demanded by classification, demand the existence of individuals, but these individuals may be "things" or "attributes", whatever types of attribute we recognise. Conversion operates in the propositions of syllogism - so Aristotle insists - and class-relations are convertible. Arguments and classifications may contain only colour-words, genus-words and species-words. Syllogism demands no singular propositions, a class statement refers to no specific member of the class. The distinction of subject and predicate, which is purely logical, demands the further distinction,

which I have termed "metaphysical" , within the shadow of the logical, between substance-individuals and attribute-individuals if the rationality of syllogism or of classification is to be a feature of natural science. We are breaking no new ground in referring to attribute-individuals as particulars and ceasing to refer to them as individuals at all. Particular-terms will appear in statements which are components in the account of an individual or of the common features of individual members of a class. The "account" corresponds to what philosophers have called "the notion of" or "our notion of", and it is by abstracting the logical and metaphysical articulation of accounts from the accounts that philosophers have arrived at "simple matters" of knowledge which (a) are "unaccountable", (b) can "come to consciousness" or "be thought" only when minds have "related" or "formed" them, while (c) these accounts of the requisite relations which do not make thought impossible are accounts of logical forms and categories which must be claimed to be the articulations of actual thought.

(e) There must be individuals is the conclusion, and propositions like "Socrates is human" point, for Aristotle, to the fact that only in the individual are thing-ness and kind actually "united". This unity is strictly logical, and the union is the foundation of the system of types of statement which is the account of an individual qua substance. But of any thing merely qua thing we can say no more than "here now", "there then"; "thinghood", "substantiality", implies existence. The traditional criterion of "independent existence", vital

to Descartes, reduces to here-now, there-then, at p^1t^1 , at p^2t^2 . And this, far from being incompatible with "being related to", has no reference to "being the only thing, or conceivably being the only thing, in the world".

But while we can say of any substance that it is here-now, or there-then, in any particular case what is here or there is a thing of a kind, of some kind, whatever its actions or relations. In Russell's terminology, we cannot say " x is" or " \emptyset is", or " $(\exists x)$ ", but only " $\emptyset x$ is" or " $(\exists x)\emptyset x$ ". Aristotle's tode ti corresponds to (\exists) or to $(\exists x)$ when x is completely indeterminate, i.e. to "there is a thing"; but he is well aware that this is an incomplete expression. We have not made a statement with $(\exists x)$, and we have a full statement when we add not only (\emptyset) but $(\emptyset x)$ and $(\forall x)$, when we say not " $(\exists x)$ x is yellow" but " $(\exists x)$ x is a rose and x is yellow", i.e. "this rose is yellow". Aristotle seems to recognise clearly that the function of "rose" as a predicate is different from the function of "yellow", and indeed in Categories 3^b he seems to claim that species and genus are only in a special sense "qualities" - they "determine the quality with reference to a substance". In other words, with the prefacing of "a" or "the" we have an individual, whereas with predicates like "yellow" we have "a quality".

When we ask what is it to be a substance, two answers are possible, each in a sense inseparable from the other, "Being somewhere, somewhen", and "Being a specific kind of thing co-classifiable with other things". This "kind" may be a genus-characterisation, a definition, or an infima-

species characterisation - and the latter, if ousia, can be given a definition. Whichever we choose, the distinction between tode ti or thing-existing-qua-thing, and ousia, will be logical, as abstract as the distinction of matter and form or thing and structure or formed matters, and being a formed-matter must be compatible with substantiality.

It is what Descartes, following his tutors, calls a "distinction of reason", what others have called a "distinction within an identity". And when Descartes, seizing upon an essential or principal "attribute", not only seizes upon an act or power but ignores any question of a classification, he presents us with an excellent differentia but no genus at all, and so he by-passes substance completely. But this produces vacuity. Category-truths must be called in, and on the ground that an act must have a substance-agent he provides a necessary substance agent, about which nothing can be said except that it has the attribute, i.e. does think, can only be conceived, and hence cannot be described. Yet he does not hesitate to tell us that this thinking-substance informs the body, and this mysterious relation of substances replaces the necessary logical relation in Aristotle by a necessary and "unintelligible" material relation. It is then we begin to realise what has happened to Aristotle's logic and theory of classification and of natural science in the intervening centuries.

What Descartes cannot do is to give an account of the thinking-substance - nor can he classify it with other substances, relate it to other substances, show that "mind or

soul" functions as do other nouns in his language. He cannot justify it as a concept, because the conceptual system fails him completely. All he can do is to seize upon the necessity of category-principles - if it is substance it must have a principal attribute, it must have qualities, it must be related to other things, it must be related to bodies - and these provide not answers but questions that must be answered and cannot be.

(f) Nor is this, in the end, surprising. Descartes' major enterprise is in fact concerned with knowledge and certainty, with the rejection from consideration of factual truths as contingent, as not necessarily true, in the search for what cannot be false. He finds necessity, as we might expect, in the realm of formal truths, logical and categorial, as they were arrived at by Aristotle, or in the realm of conceptual science where the propositions have no existential entailments. For Aristotle the logical and metaphysical truths are important because they are the logical and metaphysical truths of natural science, and no existential statement is meaningful with such terms as appear in the truths as subjects. "Substance" is a metaphysical concept, but there is no "existing metaphysical substance". Descartes, beginning his attack on the problem of knowledge, recognises "thinking" justifiably as having a priority, as necessary in the sense that there must be thinking if there is to be an inquiry, and if he is to classify "thoughts". But the necessity he is seeking is to be universal, the truths to be determined are to be truths for any thinker, i.e. necessarily true in

their own right, and not simply in relation to an individual whose nature and existence have not been "proven" and who cannot be mistaken in asserting a contingent fact.

The necessary "argument" from "thinking" to "an agent who thinks and must exist" hangs upon a metaphysical truth - "every act must have an agent", "every attribute must have a substance" - which Descartes presents (illicitly) as a logical truth - "every predicate is of a subject" - which avoids the empirical issue of determining what agent since he can give the conventional definition of "subject" that sunders it forever from "observation". Nevertheless, what gives meaning to the general argument is "I think", and "I must think, as I do, because I do, and I would not be a thinking thing if I did not think".

It is the verb in Ego Cogito, the act of cogitatio made act by having an agent, which makes it possible for the category truths to have application, and so meaning, at the Cartesian level of consideration of the first statement of "experience". Without a statement which exemplifies the forms, the forms are no forms at all, and neither logic nor metaphysics has meaning. That "mind or soul" is a value of "substance" or "subject" if "think" is a value of "act" is for Descartes an obvious truth which has to be shown to be necessary; its necessity cannot be logical or metaphysical on the basis of it is certain to me that I think, because existence and thinking are here contingent; "I would not be what I am if I did not think" suffers from the same limit-

ations, and "What am I?" must be answerable by "I am a man" for Descartes on the grounds of common sense and theology. Descartes then offers the additional proof that all the observable features of men are contingent and unnecessary - they are so in a strict sense only in relation to the necessity of the essence or principal attribute which Descartes has selected as definitional. But on Aristotle's argument, and in terms of the metaphysical principles Descartes accepts with their Aristotelian origin, the contingent features are necessary; it is metaphysically impossible for an individual to have only a defining characteristic, to be a "pure" instance of a genus-characteristic.

Book III.2 of the De Anima concludes with: "About the principle in virtue of which we say that animals are percipient let this discussion suffice". The book itself concludes:

"All the other senses are necessary to animals, as we have said, not for their being, but for their well-being. Sight....it must have in order to see, and taste because of what is pleasant or painful to it, in order that it may perceive these qualities in its nutriment and so may desire to be set in motion, and hearing that it may have communication made to it, and a tongue that it may communicate with its fellows".

What in general Aristotle wants to say is clear enough. And when Descartes, with a rare expression of a sense of humour, rallies Gassendi with: "Next, with a not infelicitous comedy, you proceed to question me, no longer as a complete man, but as a soul in separation from the body; and in doing so you seem to remind me that these objections proceed not from the mind of an acute philosopher, but from the flesh alone" ¹

1. H and R. II. pp.207-8.

it is clear enough what he is saying. Of course there are philosophers, who commune in a language and prove thereby that they are not beasts "devoid of reason".....But the jest leaves a bitter flavour on the tongue after a close acquaintance with the results of Descartes' meditating. A few lines before he has written:

"My statement that the entire testimony of the senses must be considered to be uncertain, nay even false, is quite serious and so necessary for the comprehension of my meditations, that he who will not or cannot admit that, is unfit to urge any objection against them that merits a reply. But we must note the distinction emphasised by me in various passages, between the practical activities (actiones) of our life and an enquiry into truth; for, when it is a case of regulating our life, it would assuredly be stupid not to trust to the senses, and those sceptics were quite ridiculous who so neglected human affairs that they had to be preserved by their friends from tumbling down precipices. It was for this reason that somewhere I announced that no one in his sound mind seriously doubted about such matters; but when we raise an enquiry into what is the surest knowledge which the human mind can obtain, it is clearly unreasonable to refuse to treat them as doubtful, nay even to reject them as false, so as to allow us to become aware that certain things, which cannot thus be rejected, are for this very reason more certain, and in actual truth better known by us".

If we write "the surest knowledge we can obtain" for "the surest knowledge the human mind can obtain", we have a proposal as to the way in which men who do natural science of necessity can do metaphysics; and after an examination of Descartes' writings we need no longer be perturbed by the belief that we have proven (1) we are not men, but minds, and (2) that qua minds we cannot do natural science. Qua individuals we come under the category of "substance", thus satisfying the demands of metaphysics and of logic and of science.